PHRENOLOGY


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PHRENOLOGY MADE PRACTICAL

AND

POPULARLY EXPLAINED.

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PHRENOLOGY

Made Practical

AND

POPULARLY EXPLAINED.

BY

FREDERICK BRIDGES.

"This is truth, though at enmity with the philosophy of ages."

GALL.

Second Edition.

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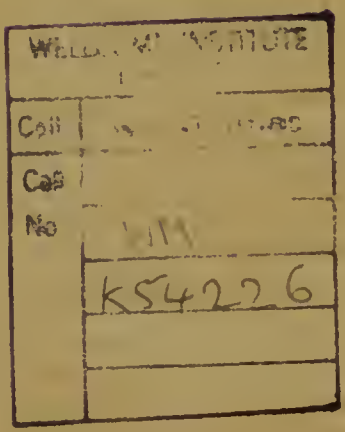

PREFACE.

In offering this work to the world, I do so with a full conviction that it contains principles that will be of lasting benefit to the human race. Having devoted twenty-five years to the investigation of the subject on which it treats, I speak on the authority of experience derived from observation.

When it was observed to a scientific pretender, that facts were at variance with the hypothesis which he had advanced, he replied indignantly, "So much the worse for the facts." Language like this was common to all scientific expounders antecedent to the seventeenth century. The shadow of a mighty name was worshipped, and Mahommedan, Jew, and Christian vied with each other in hugging the chain of scholastic bondage, deeming a quotation from Aristotle adequate to establish the grossest absurdity, or to refute the most obvious truth.

At the commencement of the seventeenth century appeared one of those master-minds that arise at different stages of human advancement in intellectual progress. With his searching glance he detected the absurdities of the schoolmen, and exposed them with a vigorous mind and unsparing hand. He dethroned the Aristotelian idol, which for ages had received the blind fealty of a world; and fortunately for science and humanity he attempted not to substitute an idol of his own. This great man was Lord Bacon, who pointed to Nature, and

observed that man was her servant and interpreter, and knew nothing but what he derived by experience on the order of her phenomena ; and maintained that all our knowledge must be acquired by observation.

To observe facts is, then, the first great business of the investigator. Facts may be divided into the presented and the produced. The first being such as nature offers to our notice without any interference of our own ; the second being such as occur in consequence of our putting in action causes and agents over which we have control. Those last named are usually called experiments, and their production and observation Lord Bacon terms "asking questions of Nature." Thus the increase of a child from infancy to manhood is a fact presented to our observation. But the conducting of a chemical analysis, to determine that a certain material contains properties, is a produced fact or experiment. It must, however, be borne in mind that if facts are well scrutinised and verified, they are of equal value whether presented or produced. But the presented facts are almost the only ones employed in phrenological investigation.

Observation, then, being the only true method of laying a foundation for the discovery and establishment of truth, we should dismiss from our minds all preconceived notions of what should be or might be, and try carefully to ascertain what *is*.

It may be well to notice that the invention and construction of the mathematical instrument named the PHRENO-PHYSIOMETER are the productions of my own mental and physical labour—so also is the MODEL HEAD. The illustrations are from photographs taken by myself to a reduced scale of one-fifth the natural size : every care has been taken to render these perfect, so that a correct estimate may be formed of the natural size of each head, and the relative and absolute quantities in position of the various sections of the diagrams, which will be found of great practical value

to the reader in arriving at a clear view of the geometrical department of the subject.

In the course of my investigations I found it necessary to make a practical examination of every branch of knowledge, both artistical and scientific, that was at all likely to afford me any assistance in the development of my views; and so far I have little to regret, although the labour has been very great.

The work, then, is given to the public with the hope that it will be read with candour, and that the facts adduced, though not presented in the most perfect manner, will have their proper weight.

To the examination of an intelligent public, therefore, the work is respectfully committed by

THE AUTHOR.

PREFACE TO THE SECOND EDITION.

The great favour with which the first edition of this work was received, not only by the public but by the press, has been extremely gratifying to me. The rapid sale of the first large impression indicates an increased and increasing attention paid to the subject.

In giving my views to the world, I did so with a full conviction that society was willing to receive new truth with candour, when fairly presented; and the very cordial reception the work has met with has far exceeded my most sanguine expectations.

THE AUTHOR.

Phrenological Institution,
Mount Pleasant, Liverpool,
May 25, 1861.

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GENUS 2.—INTELLECTUAL FACULTIES, WHICH TAKE COGNIZANCE OF THE RELATIONS OF EXTERNAL OBJECTS.

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It may not be improper to observe that the Model Head is indispensable to those persons who wish to be practically acquainted with Phrenology: it can be procured at the PHRENOLOGICAL INSTITUTION, 30 Mount Pleasant, Liverpool; *Five Shillings each.*

N.B.—To prevent the Public from being imposed upon by an imitation, I have deemed it prudent that each Model Head shall have my Signature in full, with the Date and Number.

The front view of the Model Head, shewing the positions of the mental organs on one side, and the anterior sections of the basilar and coronal regions on the other.

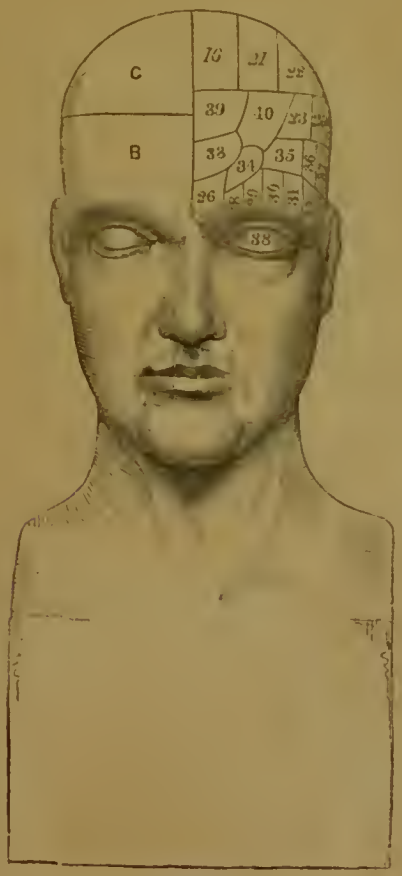


Diagram 1.—Front View of the Model Head.

The side view of the Model Head, shewing the positions of the phrenological organs.

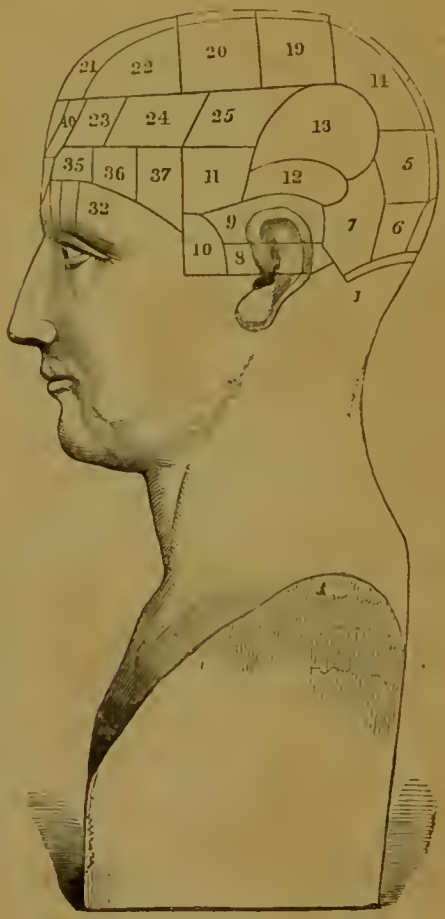


Diagram 2.—Side View of the Model Head.

The back view of the Model Head, shewing the positions of the phrenological organs on one side, and the posterior sections of the basilar and coronal regions on the other.

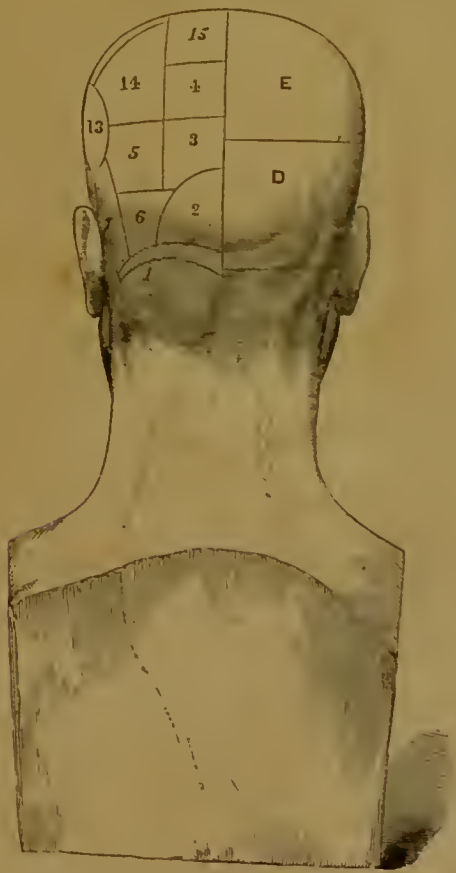


Diagram 3.—Back View of the Model Head.

The top view of the Model Head, shewing the positions of the moral organs on one side, and the anterior, middle, and posterior sections of the coronal region on the other.

Diagram 4.—Top View of the Model Head.

THE NUMBERS AND NAMES OF THE ORGANS.

1. Amativeness.
2. Philoprogenitiveness.
3. Inhabitiveness.
4. Concentrativeness.
5. Adhesiveness (Old No. 4).
6. Marriage.
7. Combativeness (Old No. 5).
8. Destructiveness (Old No. 6).
9. Preservativeness.
10. Alimentativeness.
11. Acquisitiveness (Old No. 8).
12. Secretiveness (Old No. 7).
13. Cautiousness (Old No. 12).
14. Love of Approbation (Old No. 11).
15. Self-esteem (Old No. 10).
16. Benevolence (Old No. 13).
17. Veneration (Old No. 14).
18. Firmness (Old No. 15).
19. Conscientiousness (Old No. 16).
20. Hope (Old No. 17).
21. Imitation.
22. Marvellousness (Old No. 18).
23. Humorousness (Old No. 20).
24. Ideality (Old No. 19).
25. Sublimity.
26. Individuality (Old No. 22).
27. Form (Old No. 23).
28. Size (Old No. 24).
29. Weight (Old No. 25).
30. Colour (Old No. 26).
31. Order (Old No. 29).
32. Number (Old No. 28).
33. Eventuality (Old No. 30).
34. Locality (Old No. 27).
35. Time (Old No. 31).
36. Tune (Old No. 32).
37. Constructiveness (Old No. 9).
38. Language (Old No. 33).
39. Comparison (Old No. 34).
40. Causality (Old No. 35).

INTRODUCTION.

In offering to the public the following treatise on Phrenology, I wish to make a few observations on its consistency as a science with the sciences already established, and to give a short explanation of the method I have pursued in all my investigations in confirming its scientific character.

Many intelligent and well-meaning persons reject Phrenology on the ground that it is not admitted by men eminent in science. But it should be borne in mind that the opinion of a man or any class of men, however eminent, in certain departments of science, is of no practical value on a subject which they have not studied. Still we must admit that many objections raised were of considerable weight. For example, they were in some measure right in rejecting the assumption pressed upon their acceptance as practical which many profess to know. Now as regards practical Phrenology little has been written upon it, being a department of the subject that few were able to say much about, as purely the result of their own experience. The published works on Phrenology treat principally on the facts discovered by Dr Gall, and their classification into scientific order. The art of Phrenology consists in the delineation of the natural capabilities and tendencies of individuals, which can only be acquired by long experience guided by fixed rules. In the works published no fixed rule is given by which to estimate the exact geometrical quantities that constitute the configuration of the human brain; hence, that which is not defined by geometrical rule cannot be depended upon, and consequently any inference drawn from that which is not thus defined is more or less assumption. Hence, a number of people who call themselves "practical phrenologists"

have brought Phrenology into disrepute, and made it a standing joke and target at which wits throw their pointed darts.

The fact that "knowledge is power" is forced upon our notice daily, and human happiness is enhanced in the ratio that knowledge is brought to bear upon the practical affairs of daily life. Thus our increased knowledge in chemistry, in agriculture, and mechanical improvements, all confer more power to enhance and cheapen the comforts of life. So it is with all other kinds of knowledge, and as it increases from age to age human happiness will be proportionally multiplied. The inhabitants of those nations who know the most of the laws which regulate and govern the fitness of things (other conditions being equal), can accomplish and enjoy the most. Ignorance is the greatest cause of human weakness and wickedness. Hence, to enlighten man in a knowledge of the laws of things so reduced to system in science, is the only sure way to reform and perfect him.

The wise men of ancient Greece deemed self-knowledge the most important, and the maxim "KNOW THYSELF" was written in gold upon the Temple of Delphos as a beacon for unborn generations. Self-knowledge is our knowing the most efficacious means of increasing the conditions for prolonging life, health, and happiness. It points out our natural capabilities, our virtues and vices, and liabilities to err, and those spheres and occupations in which we can and cannot succeed. In short, to know ourselves perfectly, is to know the laws which regulate every condition of happiness and every cause of suffering. And to practise such knowledge is to live in obedience to those laws that regulate every department of our being.

Throughout nature nothing stands alone. Every department is reciprocally related and forms one grand whole. In our planetary system the stars which stud the heavens, act and react upon each other, and cause day and night, summer and winter, rain, blossom, and fruit. Every species of animated nature bears a similar relation to each other; and man is the epitome and embodiment of all, the focus of her light, and representing her highest development of geometrical configuration in the union of mind and body.

It is stated that matter in its primeval state was "without form and void," and from that state it was slowly formed into

minerals and rocks, and finally into animal and vegetable forms: and we now observe that the whole of nature is based upon the fitness of things. That the structure of all beings and each of their organs correspond with their functions, and that all shades and diversities of organisations and their functional manifestations are in strict accordance with the laws which govern the fitness of things.

Throughout nature the structure of things are characterised as powerful, weak, hard, soft, fine, coarse, long, short, thick, thin, square, round, oval, &c., and in accordance with these qualities there is philosophical adaptation. The tree puts forth its immense power of function to sustain its ponderous load of leaves, limbs, and fruit or seed, which are spread out to the wind and storms, and its organic qualities are in accordance as its power is prodigious. Tender plants require little power, and accordingly they are fragile in structure. If we go to the animal kingdom we also see the law of the fitness of things in full development. Lions, tigers, and elephants, and all powerful animals, have organic structures which correspond. The muscular strength of the lion is extraordinary; it will seize wild cattle by the neck and dash through the thicket with as much ease as a cat would with a small bird in its mouth.

Thus we see that certain types of form throughout nature manifest corresponding characteristics. Those trees which bear a general resemblance to all other trees in growth and configuration are similar in character; and those trees most nearly allied in character approximate in configuration, as the beech, the birch, the oak, the pine, &c. And every tree of a given kind is shaped like all others of that kind in bark, limb, leaf, and fruit. So all things in the vegetable kingdom as well as the animal kingdom bear a close resemblance to all others of its kind, both in character and configuration, and on this all scientific classification is made.

Since nature clothes the like characteristics in like shape, of course the more nearly two beings approximate each other in mental qualities and instinctive sagacity, do they resemble each other in shape. The feline species, such as the tiger, leopard, panther, and cat, resemble the tiger in shape more or less closely according as their dispositions approach or depart from his. The monkey and orang-outang approach nearer the resemblance of the human shape, and so do their mentality.

Hence, the shape of all things is an index to their properties whether physical, mental, or moral.

All sounds and intonations are produced and propagated in obedience to the laws of acoustics, which are in strict conformity with the laws of geometry. Through all forms of animal life, or whatever makes a noise, the sound agrees with its physical characteristics. Thus the contrast of the terrific roar of the lion with the pitiful bleating of the sheep; the soft cooing of the dove with the croak of the raven; the sweet warbling of the nightingale with the hoot of the owl; the grunt of the swine with the mewing of the cat; the bark of the dog; the neigh of the horse, the bellow of the bull, to the chirp of the cricket and the hum of the bee, each corresponds perfectly with their respective organic characteristics.

The intonations of the human voice are as superior to those of brutes, as man's mental and moral characteristics exceed theirs. When man is in the habit of acting under the influence of those propensities which impart intonations to the voice that are harsh, coarse, and grating, his character and habits will assimilate with those animals whose intonations of voice are similar to his. And in the exact ratio (all conditions being equal) that persons become refined and mentally and morally elevated, will the tones of their voice become correspondingly refined. The guttural sounds of the voice of the savage are in striking contrast with those of civilised man, and few are aware how much we estimate character from this source. The sharp, shrill voice of anger is exemplified in every scold in the world, and no one mistakes it for the sweet, soft, gentle voice of kindness. The laugh of the vulgar is not mistaken for the laugh of the person of refinement, nor the horse laugh for that of the mental laugh. There is the giggling laugh, the hearty laugh, the ho! ho! ho! laugh, the barking laugh, the grinning or the hyæna laugh, the compressed laugh, the cunning laugh, the miser's laugh, the vanity laugh, the proud laugh, the benevolent laugh, the friendly laugh, the love laugh, and many other kinds, each indicative of corresponding characteristics.

The law of the fitness of things is beautifully exemplified in vision and hearing.

The eye is constructed in strict obedience to the laws of geometry, and the dynamic power of vision is regulated to those laws in accordance with the geometrical quantities re-

quired for perfect vision. If the sight be imperfect the optician makes the lens of the spectacle to possess the exact geometrical quantity to impart the dynamic power that the eye requires to make sight perfect. In the degree that the eye is in perfect harmony with the optical law by which it is governed the mind has a correct optical medium to look through. The organs of hearing are also constructed in perfect accordance with the laws of quantity, and bear the same relation to the geometrical laws which govern acoustics as the eye does to those which govern optics.

About twenty-five years ago, when studying the sciences of optics and acoustics, the idea first occurred to me that if mind requires geometrical instruments of a known dynamical power with which to see and hear perfectly, the same law may hold good as regards the manifestations of thought and feeling. I was fully convinced at the time that the brain was the organ through which the thoughts and feelings are manifested. From the moment this idea occurred to me, I resolved to put nature to the test of the most rigid induction, and, if possible, to solve the great problem that had engaged the master minds of every age, that is, to demonstrate the law that governs mind in its manifestations. I read the theories of metaphysicians ancient and modern, but they afforded me no clue. I then turned to the works of Lord Bacon, and there found it stated in the first axiom of his "Novum Organum" that "man, who is the servant and interpreter of nature, can act and understand no further than he has, either in operation or in contemplation, observed of the method and order of nature." I soon felt convinced, after a little study of this axiom, that metaphysical reasoning would never solve the problem. I therefore at once turned to nature, and began to question her at every point. I was fully satisfied that Dr Gall had proved beyond doubt that the brain was the organ of the mind, and that it was a compound organ with different functions, and that it would be a lasting benefit to the human race if the same geometrical law could be established in connexion with the brain that governed organised forms in their functional qualities, as it had been done with the eye in seeing and the ear in hearing.

It will be perceived that this book has a higher object than merely to relate the lives of criminals unparalleled probably in the annals of the past. The case of William Palmer,

as one of vicious extremes, cannot but be a text for the moralist, whilst it stimulates the reflecting mind to attempt a solution of those important and ancient problems, what are we?—why such vice?

From this point of view we purpose treating the subject, and hope by using it as an illustration to make plain and popular such a knowledge of human nature as may be brought into daily use. "To know that which before us lies in daily use is the prime wisdom." We then hope to render easy and practical not only the principles of Phrenology as a science, but its practical application as an art. In fact we wish to make every student so intelligent that he may read in the form and aspect of the head and face, as though mapped out, the tendencies and dispositions of persons in whose characters he may feel interested. We shall also endeavour to expound the true and only demonstrable theory of education.

PRACTICAL PHRENOLOGY.

THE STUDY OF HUMAN NATURE.

The study of human nature has ever been accounted of the first importance, and has called into vigorous action the master minds of every age. But the successive abandonment of every system of mental philosophy propounded shews that the authors laboured in the dark, until the true method of mental action was discovered. Some shut themselves up in their studies, and sought by watching the operations of their *own minds* to deduce a system of mental philosophy which would apply to all mankind. They failed, however; having only acquired an imperfect knowledge of their own minds, leaving undiscovered the most important part of their subject—the cause of the numerous and striking diversity of the human character. Other thinkers hoped to acquire this earnestly-desired knowledge by travelling, and mingling with all classes and conditions of men. These were more successful; but their knowledge was still found wanting. Anatomical investigation was another mode of studying human nature. Although this led to a better knowledge of the structure and functions of several parts of the body, it shed no light on the laws of mind, or its manner of operating through certain organs of the body.

Physiognomy has ever been fondly appealed to for this coveted secret, the external indications or characteristics of mind, but in vain. Aristotle and Theophrastus among the ancients, tried to reduce their views to system. Among the moderns Camper and Lavater. But all the real success which

attended their labours, was only just in proportion to their approximation to the truth of Phrenology as since developed and explained in the following treatise.

Phrenology, in course of time, was gradually introduced as science took a practical direction. It was recognised as certain, simple, and demonstrable, and thus became the foundation of what had been so long sought in vain. On this as the basis, we now purpose to advance; and in order to shew what has already been done by our predecessors, we present our readers with a short history of Phrenology.

HISTORY OF PHRENOLOGY.

The foundation of Phrenology was laid by Dr Gall, a physician of Vienna, who was born at Teifenburn, in Swabia, March 9th, 1757, and who died at Paris, August 22d, 1828, aged seventy-one. It appears that from an early age he was very observant, and was struck with the fact that each of his brothers and sisters, together with his companions in play, and schoolfellows, was distinguished by some peculiarity of talent and disposition.

The scholars with whom Dr Gall found it most difficult to compete were those who committed to memory with great facility. He might surpass them in original composition, but they surpassed him in verbal memory, and therefore gained those honours which he had won. He observed that his schoolfellows so gifted had prominent eyes. On entering the university he directed his attention from the first to those students whose eyes were prominent, and found that they excelled in learning rapidly by heart, and giving correct recitations, although many of them were by no means distinguished for general talent. But the "ox-eyed" students, as they were called, always bore away the palm whenever the acquisition of words was concerned. Gall could not believe that this coincidence of the two circumstances was entirely accidental. From this period, therefore, he suspected that they stood in an important relation to each other. After much reflection, he conceived that if memory for words was indicated by external sign, the same might be the case with other intellectual powers. From this time all individuals distinguished by any remarkable talent became the object of his particular attention. By degrees he conceived that he had found external characteristics

which indicated a disposition for painting, music, and the mechanical arts. He observed that a young man, an acquaintance of his, when rambling in the woods with him, never lost his way, while Gall himself frequently did. This young man had two very marked prominences on his forehead, just above each side of the root of his nose. Subsequent observation convinced Gall that persons so distinguished acquired with ease a knowledge of localities, and that they could find any place where they had been before almost instinctively, however obscure and complicated. He became acquainted also with other individuals remarkable for determination of character, and he noticed a particular part of their heads to be very largely developed, which suggested to him *the idea of looking to the head for signs of the moral sentiments.* However, he never conceived for a moment, as has been erroneously represented, that the skull was the cause of this difference of talents. From the first, he referred the influence, whatever it was, to the brain. He therefore abandoned every theory and preconceived opinion, and devoted himself entirely to observation of nature. Being a friend of Dr Nord, physician to a lunatic asylum in Vienna, he had frequently opportunities of making observations on the insane. He visited prisons, and seats of justice, and wherever he heard of an individual distinguished in any particular way, either by remarkable endowment or deficiency, he studied the developments of his head. In this manner, by an almost imperceptible induction, he concluded that particular mental powers are indicated by particular configurations of the head.

In every instance, when an individual, whose head he had observed while alive, happened to die, he used every means to be permitted to examine the brain, and frequently did so. He found that, on the removal of the skull, the brain covered by the *dura mater* presented a form corresponding to that which the skull had exhibited in life. Dr Gall did not, as many have imagined, first dissect the brain, and pretend by that means to discover the seats of the mental power; nor did he, as others have conceived, first map out the skull into various compartments, and assign a faculty to each, as fancy led him to conceive the part appropriate to the power. On the contrary, he first observed particular talents and dispositions, and particular forms of head. He next ascertained, by the removal of the skull, that the figure and size of the brain

are indicated by the external form of the skull. It was only after these facts were determined, that the brain was minutely dissected, and light thrown upon its structure.

For the first time, Dr Gall delivered lectures on his discoveries, at Vienna, in 1796; but he naturally failed to give system to the facts which he had discovered.

In 1801 John Gaspar Spurzheim, also a German, became the pupil of Gall; and in 1804 was admitted as his partner. Spurzheim greatly improved the nomenclature and classification of the organs which Gall had discovered, and also contributed much towards giving a philosophical account of the anatomical structure of the brain.

Diagram 5.—Michael Angelo.

Spurzheim's partnership with Gall ended in 1813, and in 1814 Spurzheim visited England, and lectured in the principal cities and towns. During his visit to Edinburgh he had the good fortune to make a convert of Mr George Combe, a gentleman who has since distinguished himself as an able and eloquent expounder of Gall's facts. In 1817 Spurzheim returned to Paris. In 1824 the lectures of Gall and Spurzheim

at Paris were prohibited by an order of the government. Spurzheim again visited England in 1825, where he afterwards spent most of his time, until June 20th, 1832, when he sailed from Havre, and arrived at New York August 4th. He remained in New York until the 18th, when he proceeded to Newhaven. On the 16th he left for Hartford, and from that city he went to Boston, where he arrived on the 20th. He gave a course of lectures at Boston, and another at Cambridge. This was the last labour of Spurzheim in the cause of science. A slow, continued fever, not at first considered dangerous, finally proved fatal, and he died at Boston, Nov. 10th, 1832. No man was more sincerely lamented. To the immortal honour of Boston, the most distinguished tokens of love and regard were extended to him while living, and the highest testimonials, grateful reverence, followed him to his grave. The beautiful monument erected at Mount Auburn to his memory is but an emblem of the pure affection with which he was cherished by his friends. His burial may be forgotten, but the names of Gall and Spurzheim are immortal. They must always be associated with principles that will be known and appreciated while science has a temple or a devotee on the earth.

GENERAL PRINCIPLES.

PHRENOLOGY teaches that the material agent of the mind is the brain, not that the brain itself is the mind. We take for granted that mind is a spirit, complete as a unit in itself. But this spirit, as we all see, makes known its thoughts and feelings by means of the brain as an instrument to come into union with the external world. A familiar simile is the eye. No one regards the eye itself as sight, but we all know that it is the agent of sight. What are termed the nerves of sensation are the mediums through which all external impressions are conveyed to the mind, just as a message is sent by the electric telegraph from Edinburgh to London or Paris. The brain, in fact, may be compared to a large coil of nerves or electric wires encased in *medullary matter*. The mind being the innermost spring of our nature, none of our faculties are capable of perceiving its incorporeal existence. As a matter of sequence, what our faculties cannot perceive they cannot directly act upon. Therefore, when people talk of im-

proving or changing the mind, it must be the physical instrument or agent of the mind to which their language refers. The spirit is only under the influence of Him who breathed into dust the breath of life, creating thereby a living soul. To improve implies superiority, but no one will arrogate the power of improving souls. Education needs not so deep an influence. All that men can do, is to improve the agent;—to render more fit the earthy tabernacle of the soul,—and this we may do, and do well. The correctness of this theory is universally admitted in several of the mental functions, as

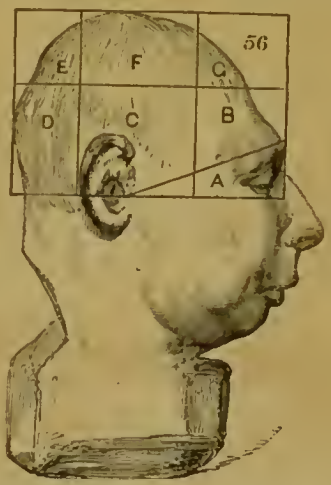


Diagram 6.—Idiot, 1-5th the natural size. The subject of the engraving was an idiot girl of Cork, aged fourteen. The extreme deficiency of brain is obvious.

exercised through the senses; such as seeing, hearing, smelling, tasting, and voluntary muscular motion. These are as truly operations of the mind as reasoning, remembering, and resolving, and are alike suseeptible of improvement by improving the organs through which they work. When vision is improved or impaired we always refer to the eye, to the optic nerve, and to that portion of the brain connected with them, as the functions affected, and not to the mind in its unity. We know that in old age, when the sight begins to fail, in consequence of the eyes becoming impaired by wear, &c., we can, by artificial appliances, restore the sight to something like its former condition. Do we wish to improve the hearing? We at once refer to the auditory apparatus, and not to the

mind. The same may be said of each of the other senses in succession. Nor is this truth less evident when applied to voluntary motion. The opera-dancer, the tumbler, the conjuror, and the swordsman, in acquiring expertness in their occupations, do not improve their minds, but the muscles and joints concerned, together with the nerves and those portions of the brain having the guidance of them. As to the higher mental operations, the same truth may be affirmed. The mind works with the brain as its instrument, just as it does with the eye in seeing, or with the nerves and muscles in dancing. Every one knows that the memory for words, and the memory for numbers, are both rendered more retentive by exercise. But we could not say that the mind, in the abstract, is thus improved, but it can be demonstrated that portions of the brain are thereby amended. By practice men become more powerful in reasoning and correct in judgment. Hence, when we wish to improve mental operations we should strengthen the organs used in performing them. This proposition is of great importance in its bearing on education and human improvement.

Phrenology teaches that the brain is composed of a number of organs. Admitting the first principle, that the brain is the organ of the mind, it seems impossible to avoid the second. For if the brain is the organ of the mind, how shall we account for the superiority of man over the lower animals, unless we admit that he has more and higher organs of the brain? In examining the brains of animals, we find them more complicated, and containing additional parts in the ratio that the animal manifests instinctive sagacity.

Some persons are great geniuses in some things and almost idiots in others.

Some are insane on one class of subjects and perfectly rational on all others.

In dreaming, some faculties are active and the rest asleep.

It is easy to account for these phenomena on the principle that the brain is constituted of a number of organs, which are possessed in different degrees by different persons of different ages, and that the lower animals possess some of them and are destitute of others. One organ may be diseased, and the rest sound; one may be asleep or at rest, and the others awake or active. If this phrenological principle be denied, there is no means by which to explain these phenomena.

But we have abundance of proof resulting from observation in support of a plurality of organs.

Phrenology teaches that the size of an organ indicates its power of manifestation, other conditions being equal. By other conditions being equal, we mean temperament, quality of brain, the general organisation, the condition of the nutritive organs, the state of health, the degree of excitement under which the different faculties act, education, age, &c. In consequence of difference in these particulars, there are differences in mental manifestation. So in proving Phrenology, as well as in applying its principles, it would be absurd to give an opinion without such knowledge. For instance, suppose we select two persons, one having a large brain, the other with a small brain, and, other conditions being equal, we should not hesitate in declaring that the person with a large brain would manifest the greatest power and ability. But it must be explained, a man with a small brain and a very active temperament, may by cultivation rival a man with a large brain, but of indolent habits, or dull temperament. Facts place this proposition beyond doubt. Dr Macnish has well said that a large-brained person (all other conditions being equal) acquires a natural ascendency over another whose brain is smaller. A nation of small-brained people is easily conquered, and held in subjection: this fact is strikingly apparent in the facility with which the small-headed Hindoos were subjugated, and the extreme difficulty experienced in overcoming the Caribs, whose brains are large and active. No man acquires a supremacy over masses of his fellow-men without a large brain. The head of Pericles, who wielded at will the fierce democracy of Athens, was of extraordinary size. Mirabeau, whose thunder shook the National Assembly of France; Danton, who rode like an evil spirit on the whirlwind of the French Revolution; Franklin, who guided, by the calm power of his wisdom, the legislature of America,—had all large brains. That of Mirabeau is spoken of as enormous, and he is known to have possessed incredible force of character as well as distinguished talent. Mr O'Connell without great size of brain never could have impressed so forcibly as he did during his life of agitation. There is not a single instance of any one with a small or moderate sized brain wielding multitudes like the Irish "agitator," or grappling triumphantly with the dangers of a troubled age like

Cromwell, or raising himself from a private station to the most splendid throne in Europe, like Napoleon the First. To accomplish such feats not great intellect merely is demanded, but commanding force of character, arising from unusual size of brain.

REMARKS ON THE CONDITIONS OF SIZE.

Size cannot be considered irrespective of its conditions; and we admit no argument against us of any avail unless each and all of the conditions are fairly included. Size is the great desideratum, except it be large or small size, resulting from malformation. We say this of the great mass of men, excepting increased size from disease, which can never be made an argument against the principles we have advanced.

In these conditions we only express the simple laws of relation which pervade all nature; alike in physics and metaphysics; and the same in every exact or speculative science.

GENERAL PRINCIPLES OF THE HUMAN CONSTITUTION.

In the formation of all bodies, certain elements enter them necessary to their structure and use. This is true of man as a being, and of his body in all its parts. These elements are diffused through the tissues, and are endowed with vital properties, such as attraction and repulsion. When any one class of these predominate, they give a specific tone and temper to all the rest, and affect the whole system on the principle of correlation. But the elements are so subtle and minute, that they are circulated by both the vital energies and fluids alike in all the organs. Hence they rarely occur predominant, but are generally combined in different relative proportions. Indeed, their combinations occur in the same manner as the several functions of the cerebral organs, and we treat them as such.

The harmony of the functions depends on the symmetry of the form. If one organ be too large, it takes up more than its proportion of the vital energies; diverts to itself more than its share of nutrition, and thus deranges the harmony of the whole. For in the normal state, the vital energies are universal, equal, and all pervading; the strength is distributed to each viscus alike, and the whole organism is made

true to its design, without dissimilarity of parts or excess of functions. The size of the organ bears an exact relation to the amount of vital energy necessary both to its reproduction and function. Now, if an organ be too large, more than its proportion of vital power is exhausted from other organs, or may be from the functional power of the organ itself. Hence, it is self-evident that symmetry of organism is essential to equilibrium in its growth or function. In a badly-formed organisation, the vital powers are ever labouring most to equalise the functions of the parts. Adhering strictly to this incontrovertible principle of physiology, we have resolved on introducing this class of conditions to the laws of size, and to use it in estimating phrenological character.

Diagram 7.

Diagram 8.

We have introduced two figures, to shew the three organic

regions, also to shew the difference between the male and the female form—the male—figure 7—being broadest across the shoulders, while the female—figure 8—is broadest across the pelvis.

The Abdominal Region.—This region lies below the diaphragm or waist, extending down to the lower extremities, and embracing the several organs of digestion, the liver, spleen, pancreas, bladder, kidneys, and the organs of generation. We include all the artificial regions of the abdomen proper, as also the whole pelvis. In these organs several of the most important functions are performed; and nearly all those of organic life. To these most of the external and physical stimuli are constantly applied. It is by over-acting these organs that nearly all the habits of man are formed, such as intemperance, gluttony, and licentiousness; it is here the great majority of diseases, both acute and chronic, manifest themselves.

Perhaps we can use no better word than *appetite*, when we wish to express the result of this region being too large—appetite which is accompanied with a tormenting longing and hankering after something to stimulate and satisfy. We do not now speak of disease, but refer to the natural consequence of unequal size in a healthy state. The base of the brain and this region have a close sympathy; at all events, in the human subject, if these organs be too large, the lower propensities are the most active of the cerebral organs. They draw away the natural action of the other organs, and use the inervation thus stolen in fostering the lower vegetative appetites. If too small, they derange the thoracic and cephalic organs by second causes; that is, they withhold the elements of inervation and nutrition. When harmoniously developed, the secretions are appropriate, the tone of the system equal, the health firm, and the mind free.

The Thoracic Region.—This region is bounded by the dorsal vertebræ, the ribs, the osternum, the diaphragm, below; and the throat above. It embraces the heart and lungs, and is the centre of the functions of respiration and circulation—the two great forces of the organism on which depend animal heat and motion.

If this region be too large, the brain is overcharged with blood, partakes partially of the nature of a muscle, suffers mere physical action, gives out volition for muscular motion rather than elevated mental phenomena, sinks in the tone of its sentiments and intellectual functions, and is subject to the demands

of the voluntary organs. If the region be too small, then the system, with the brain, is poorly nourished, the blood is not sent efficiently into the distant organs, the cuticle is dry and ill-odored, the digestion is obstructed, and physical and mental imbecility succeed. The man is a cipher while living, and his life is short. An average or symmetrical development of this region gives a business-like, steady, strong, and able constitution, and supports the brain in healthy action.

The Cephalic Region.—The head constitutes this region, containing the brain, the medulla oblongata, the roots of the cranial nerves, the face, and the blood vessels supplying these parts. In this region the mental phenomena all occur, the great centre of sensation is located, and the spirit is enthroned. From this goes out all the forces of inervation, and here are the principal muscles of expression. In our design we mainly consider the cranium, and those organs in its cavity, and leave the face for analogy in comparative anatomy.

The human constitution is composed of a vast number of organs, intimately related to each other, and when every part and condition of the body is in complete relation, all act together in the most beautiful and perfect harmony. Notwithstanding the exalted nature of man above all other animated tribes, yet he is subject to the same laws that regulate the rest of the animal and vegetable creation.

The organs which compose the human constitution are so numerous and complicated, and the offices that they perform so different, that it would be impossible to form any correct idea of them, without classing together those which perform similar functions, and considering them as distinct and partially independent systems. Thus the bones are denominated the *osseous system*, and constitute the frame upon which the other organs are supported. But the bones cannot move without the agency of the muscles :—these constitute another class of organs, denominated the *muscular system.* Those who are not familiar with the anatomical expressions, will have a perfect idea of the structure of the muscles, when they are informed that all the lean parts of the flesh are entirely composed of muscles ; the parallel fibres of which extend from one bone to another ; and possessing, as they do, the power of contracting with great force, they are capable of moving the bones from one place to another as far as the tendons will permit. The principle of contractility of muscles is of great importance,

since every motion of the body and sign of life which we are capable of making are made by the contraction of one or more of the muscles. Not only are the movements of the body, the pulsation of the heart, the circulation of the blood, and the action of the stomach and intestines dependent upon the construction of the muscles, but also the manifestations of the mind are dependent upon muscular contraction. This dependence of the mind upon the muscles is illustrated in the case of persons who have been in a trance. Although conscious of what was going on around them, yet they could give no sign of consciousness.

The muscles are of different sizes and forms, according to their situation, and to the force which it is necessary to exert. But notwithstanding that they are absolutely necessary to produce motion, yet they never move themselves: they are excited to action by the agency of some part of the *nervous system*, which is included under the following head :—

THE NERVES OF INVOLUNTARY MOTION.

The nerves stimulate and excite all the muscles that are independent of the will; all that are concerned in digestion, circulation, and respiration. These functions proceed incessantly from the very commencement of our animal existence to the last moments of life, whether we are asleep or awake—without our being conscious of it, and without our being able to prevent it by any act of the mind.

THE NERVES OF VOLUNTARY MOTION

All originate in the brain, and are under the control of the will. They are the messengers which convey to the muscles the decision of the mind: they however cease to act when separated from the brain, and are evidently mere instruments of communication between the brain and the muscles. Wherever the mind determines to act, the voluntary nerves receive an influence from the brain, and quick as lightning convey it to the appropriate muscles, which instantly contract and produce the action. Thus if we wish to speak, the brain conveys, through the medium of the voluntary nerves, an influence to the muscles of the tongue, throat, lips, &c., and instantly they contract, producing the requisite sounds.

The nerves of the five senses convey impressions to the brain from the external world. The optic nerve conveys impressions of light, the auditory nerve of sound, the gustatory nerve of savours, and the olfactory of odours: while the nerves of touch extend from all parts of the body and head; and infinite numbers of exceedingly minute branches convey to the mind impressions of cold, heat, pain, and mechanical pressure.

Thus we have seen that the bones cannot move unless acted upon by the power of the muscles, and that the muscles are incapable of acting until they are excited by the nerves, while the nerves are dependent upon the brain, and the brain is excited by the five senses, which, in their turn, are stimulated to action by the external world.

These three classes of organs—the bones, the muscles, and the nerves—constitute the most essential part of the human constitution. All the other systems of organs are merely auxiliary to these, and conducive to their nourishment.

When all the systems which compose the constitution are in perfect form, size, and vigour, the individual may be said to possess a balanced constitution. But this perfect proportion of parts is rarely found; hence, a perfect human being, mentally, morally, and physically, is more imaginative than matter-of-fact. Shakspeare makes Hamlet represent his father as being endowed with such perfection of constitution—"Where every god did seem to set his seal, to give the world assurance of a man." The ancients believed that particular deities presided over certain parts of favoured individuals.

When one system of organs predominates over the rest, its influence may be observed in every part, producing modifications of form, size, and texture, and moving in the degree of activity and energy with which the organs of the brain perform their functions. When the muscular system is developed in a greater degree than other parts of the constitution, it is known by the great firmness which it imparts to the flesh, the harshness to the expressions of the countenance, and the strength of the body generally. The osseous or bony system is frequently large while the muscles are small, and on the contrary; but since they both tend to the same result, and combine to give strength, we shall associate the two systems under the same head. Hercules, Ajax, and Wallace are fine

illustrations of the muscular system. This system seldom predominates in women, as the majority have the osseous and muscular system small.

When that class of organs which constitute the nervous system predominates, in accordance with the well-established principle, size is a measure of power; other things being equal, it will have an influence over the other systems in an exact proportion to its superiority in comparative size.

The involuntary nerves, the office of which is to excite certain muscles independently of the mind, will certainly have more effect if those muscles are small. The nerves do not give strength but activity. The strength of the muscles depends upon their size and compactness, but their activity depends upon the nervous apparatus that excites them. This is also true of the *voluntary nerves;* and persons in whom these predominate perform all their actions with great rapidity. They are well adapted for situations that demand great celerity, where little muscular strength is required. When we consider that the voluntary nerves act upon the muscles in obedience to the laws which govern the brain, it is plain that the smaller the muscles, compared to the exciting power, the more rapid must be their action. When the bones and muscles are small, and the nervous system powerful, the limbs and the features move quickly, and are easily excited.

The mind never manifests itself but through the muscles. The larger the organs of the brain, and the smaller and more delicate the bones and muscles, the greater will be the effect of the mind upon them.

But science shews we are so constituted that we are continually wasting; it is therefore necessary to have organs to repair the waste. We have pointed out three essential systems of organs—the osseous, the muscular, and the nervous, and the important offices which they perform in the economy of human nature. There are also the nourishing systems—the digestive and the arterial. The nourishing systems being important, as they affect the other named systems by modifying their power and activity. This point is one of great importance, and we shall therefore endeavour to state it distinctly, and illustrate it clearly.

Were it not for the necessity of nourishment, we should have no need for the nourishing systems, and the human constitution would have been a much more simple machine. There

would, however, still be a necessity for the bony framework, and also the nervous system, to excite the muscles.

When the digestive system predominates over the arterial, more nourishment is supplied than the bodily organs require for their growth and strength. This superabundance is deposited in the form of fat between the fibres of the muscles, under the skin, and around the heart, arteries, &c. The muscles receive a useless load, which lumbers them, and renders their action more slow and difficult. The heart does not send the blood with so much vigour and rapidity to the brain, the muscles do not contract so forcibly, and the whole constitution becomes partially clogged. The fat settling under the skin gives roundness and fulness to the features and the body, and so covers the muscles and nerves as to prevent them from being easily impressed and excited by external circumstances. It gives moderation to the movements of the muscles, and adds to their bulk without increasing their strength. Such persons are easily fatigued, and prefer situations where little exertion is necessary. Cæsar said—

> "Let me have men about me that are fat. . . .
> Yond' Cassius has a lean and hungry look;
> He thinks too much: such men are dangerous."

When the arterial system predominates, the muscles and nerves are nourished and stimulated to the highest degree, and as they are the organs that produce motion, the consequence is that such individuals will love to be in action; they will be fond of all kind of exercise, and industry will be natural to them. Individuals of this class are well suited for situations where all the organs, both bodily and mental, can have a share of exercise. They frequently make poor students, even when they are possessed of good mental powers, because study is too confining for them; they cannot keep still long enough to learn their lessons from books, but they soon learn any operation, the performance of which allows them a variety of exercise. Such persons are prone to sensual pleasure. What we mean by the phrase *sensual pleasure* is the enjoyment produced by the exercise of the bodily organs, as in sporting, dancing, wrestling, boxing, eating, drinking, &c. This proneness will, however, be in a great degree modified by the relative development of the brain. If a man has the organs of combativeness large he will be fond of physical sports, such as hunting, &c., because that will be a kind of exercise that

gratifies at once his largest and most active organs both of the brain and body. But if combativeness be small an ardent temperament will not be sufficient to induce him to the chase; and yet, if alimentiveness be large, he will be apt to indulge frequently and freely in eating and drinking.

It is the organs of the brain that dispose us to pleasure of all kinds. But when the body is highly nourished and excited by the blood, the individual will be likely to use those organs of the brain the gratification of which will afford activity to the body, and those are principally alimentiveness, amativeness, humour, combativeness, and destructiveness; hence it is the gratification of these organs that constitute what is meant by the phrase "sensual pleasure."

The signs of this temperament are an animated countenance, florid complexion, blue eyes, and red or yellow chestnut hair; the form of the features generally handsomely developed, with a rosy complexion and ardent passionate feelings: young people of this constitution are more interesting to each other than those of the other temperaments. Persons of this class are said to be of the sanguine temperament; the muscles are large and tolerably firm, and the spirits lively and boisterous.

The lymphatic temperament is indicated by a full body, the flesh soft and flabby, the hair and complexion pale, the eyes expressionless, the pulse slow, and the person indolent, inanimate, loutish, and insipid. The restless, discontented, revolutionary spirit never inhabits this temperament.

The nervous temperament is distinguished by fine silky hair, pale complexion, small muscles, sharp features, and often delicate health. It is the most excitable and sensitive of all the temperaments, but its efforts, though rapid and vivacious, are soon exhausted.

The bilious temperament. This temperament is improperly named. There is no connexion whatever between it and an excess of bile, as might be expected from its denomination, and as was supposed by the ancients. The term fibrous more distinctly indicates its character, and by this name it ought to be known. It is indicated by dark hair, a coarse oily olive-coloured skin. The muscles are less than in the sanguine but harder, and there is little fat. This temperament possesses much energy, and is the best for sustaining the system under long-protracted efforts. Persons of this temperament are slower in bodily and mental action, than those of the nervous or the

sanguine. They are not so soon excited nor so soon exhausted. They are not so warm and ardent in their feeling, but more enduring. They are not so fond of muscular exercise, and are not so lively and changeable in their thoughts and feelings as the sanguine.

The temperaments which most resemble each other are the most frequently united—hence, the lymphatic and the sanguine, and the nervous and fibrous go together. But we frequently find the most dissimilar in combination.

The brain is influenced in its action by the prevailing temperament; indeed, so much so, that in inferring character, the temperament is a primary consideration. For example, if a lymphatic person possess the same size and shape of brain as a sanguine one, he will manifest far less energy and activity of mind. The brain, in common with all the rest of the body, partakes of the functional energy or activity communicated by the temperament. In the lymphatic the blood is sent with less energy to the brain, hence that visens is naturally torpid in its action. In the sanguine and the fibrous the reverse is the case: the pulse is stronger and quicker, a proof of the greater activity of the circulating system. The brain is more vigorously stimulated, receiving from this quick passage of the blood through it superior activity and power of function.

The torpor of the lymphatic temperament is considered, in a great measure, to arise from the blood being of a more watery description than in the other temperaments. It is, however, a well-known fact, that in the lymphatic there is a great predominance of the glandular system, and of the watery secretions. The quality of the brain corresponds with the temperament. The texture of the brain is very fine in the nervous temperament, and the reverse in the lymphatic. The texture of the skull is influenced by the prevailing temperament, being fine and compact in the nervous, coarse and open-grained in the lymphatic. The muscles are fine in the former and flabby in the latter.

Particular temperaments prevail in some nations more than in others. The lymphatic predominates greatly among the Dutch, and to a considerable extent among the Germans. In France the prevailing temperaments are the nervous-sanguine or the nervous-fibrous. The sanguine seems to prevail among the Swedes and Norwegians, and combines largely with the nervous among the Irish.

The temperament which we generally find in genius is the nervous and fibrous, the nervous and sanguine, or a mixture of them. A purely lymphatic person will be distinguished for slothful genius.

It is confirmed by long observation that one inherent quality characterises the various organs composing an individual human body. If the bones be dense and firm, and the muscles compact and vivacious, the other organs of the body partake of this superior quality, and the brain among the rest is capable of vigorous action. The influence of temperament is strikingly manifested in the lower animals. The bones of the race-horse are much more compact than those of the draught-horse. The muscles are also finer, more compact and tougher, and the animal possesses that mingled vivacity and capability for rapid and continued exertion, which we observe in persons of the fibrous-nervous and the sanguine-fibrous temperaments. In sluggish animals, such as the cow, the hog, &c., the lymphatic temperament is a decidedly marked feature.

The nervous temperament evidently predominated in Kirke White, Keats, Cowper, and Pope; the nervous-sanguine in Shakspeare; the nervous-fibrous-sanguine in Milton; the fibrous-sanguine-nervous in Julius Cæsar; Oliver Cromwell and Napoleon had the same temperament; but more of the sanguine in proportion to the nervous in Wellington; the fibrous-nervous, Franklin; and Dr Gall the sanguine-fibrous-nervous.

It is a remarkable fact that the temperament can be greatly modified by mental and physical exertion, and that the lymphatic temperament can be eradicated to a considerable extent. Age has great influence on the temperaments; people when young who shewed little or none of the lymphatic, towards middle or advanced life, becoming full bodied and indolent, and indisposed to either mental or physical exertion.

It must now be evident that the doctrine of the temperaments, which treats of the quality, energy, force, and activity of the physical system as a whole, is a much more important condition than many have been led to suppose.

The true phrenologist always calculates the effect that the quality of the brain, and the way that it is influenced in its action, have on the manifestations of the mind.

How to know the temperaments, and to judge of the relative size of the three great vital regions—the brain, the thorax, and abdomen.—If the abdominal region be large, and the thoracic and cephalic regions small, the lymphatic temperament is indicated. The thoracic region large, and the abdominal and cephalic regions small, shew the sanguine temperament. The cephalic region large, and the thoracic and abdominal region small, denote the nervous temperament.

The cephalic and thoracic regions large, and the abdominal region small, indicate the sanguine and nervous temperaments.

The cephalic and abdominal regions large, and the thoracic region small, mark the nervous-lymphatic temperaments.

The thoracic and abdominal regions large, and the cephalic region small, shew the sanguine-lymphatic temperaments.

The abdominal and thoracic regions large, and the cephalic small, indicate the lymphatic-sanguine temperaments.

It may be well to observe that in making use of the terms, 1. Lymphatic-Sanguine—2. Sanguine-Lymphatic—3. Lymphatic-Nervous—4. Sanguine-Nervous—5. Nervous-Lymphatic—6. Nervous-Sanguine, it must be understood, that the first named temperament takes the lead; for example, lymphatic-sanguine infers that the former is more highly developed than the latter, and the same with all the others. 7. The compound temperament is indicated by an equal development of each; as the abdominal 5 degrees, the thoracic 5 degrees, and the cephalic 5 degrees. But we seldom meet with an individual possessing these proportions. It may be the abdominal 3, the thoracic 6, and the cephalic 5; or the thoracic 7, the abdominal 4, and the cephalic 6; and so on with the various combinations forming the compound temperament.

When it is fully ascertained in what relative degrees the abdominal, thoracic, and cephalic regions stand to each other in an individual, then observe the osseous system, and if that be fairly developed, and he is not too tall for his width, then pass to the muscular system, and see how the bones are covered with flesh. Next examine the texture of the skin, the quality and colour of the hair, and the complexion.

When you have fairly made out all the conditions, and in what degree they are likely to influence the manifestations of the mind of the individual, you are then in possession of

most important knowledge, which will enable you to form a correct estimate of his natural abilities, and the degree of force and activity of his brain.

It is important, however, to bear in mind that the nearer the temperaments are equal in development, the better for the manifestations of the mental, moral, and physical energies, and for long life. It is a law in physiology, that harmony of function depends on symmetry of form. If an organ be too large, it takes up more than its proportion of the vital energies, and thus deranges the harmony of the whole. It is then evident, that symmetry of organism is essential to equilibrium of action. By adhering strictly to this incontrovertible principle of physiology, you work upon sure ground.

ANATOMY OF THE BRAIN.

The brain has always been a subject of much learned discussion; but until the time of Dr Gall, the little that was known concerning it was of no material use, and only tended to distract the mind of those medical students who endeavoured to understand it.

The ancients entertained different opinions regarding the use of the brain: some believed, or rather suspected, that the brain was the seat of the mind; others, with Plato, considered the heart as the seat of the passions, and the brain the habitation of the higher and nobler sentiments. Hippocrates regarded the human brain as a sponge, which imbibed the moisture of the body. Aristotle, on the contrary, viewed it as a humid mass, intended to temper the heat of the body. Descartes believed that the pineal gland, a part about the size of a pea, at the centre of the brain, was the habitation of the mind. Some, again, pretended to think that the brain was merely to balance the face, and prevent it from inclining too much forward, and that the mind resided in every part of the body.

Although the fundamental principle that the brain was the organ of the mind was fully established by scientific men before the time of Gall, yet to this great man is due the credit of having demonstrated that the brain is constituted of a number of organs with different functions.

The different parts of the brain, instead of receiving names expressive of the functions which they performed, have been

named according to the shape which they generally assume. This accounts for the strange and unphilosophical terms which are used by writers on anatomy, and which are only calculated to discourage the common student. Indeed, few

Base of the Brain.

Diagram 9 represents the base of the cerebrum and cerebellum, together with their nerves. 1. The anterior extremity of the fissure of the hemispheres of the brain. 2. The posterior extremity of the same fissure. 3. The anterior lobe of the cerebrum. 4. Its middle lobe. 5. The fissure that separates the anterior and middle lobes. 6. The posterior lobe of the cerebrum. 7. The point of the infundibulum. 8. Its body. 9. The corpora albicantia. 10. Cineritious matter. 11. The crura cerebri. 12. The pons varolii. 13. The top of the medulla oblongata. 14. The posterior prolongation of the pons varolii. 15. The middle of the cerebellum. 16. The anterior part of the cerebellum. 17. Its posterior part, and the fissure of its hemispheres. 18. The superior part of the spinal cord. 19. The middle fissure of the medulla oblongata. 20. The corpus pyramidale. 21. The corpus restiforme. 22. The corpus olivare. 23. The olfactory nerve. 24. Its bulb. 25. Its external root 26. Its middle root. 27. Its internal root. 28. The optic nerve beyond the chiasm or crossing. 29. The optic nerve before the chiasm. 30. The third pair of nerves. 31. The fourth pair. 32. The fifth pair. 33. The sixth pair. 34. The facial nerve. 35. The auditory nerve. 36, 37, 38. The eighth pair of nerves.

medical students think it worth the trouble to learn the details of the anatomy of the brain as it is commonly taught, as they soon ascertain that it is of no practical use; consisting of merely learning the locality of parts, the offices of which are unknown, and even unconjectured, and simply resembling in form certain familiar objects from which they derive their names.

Diagram 10.—*a*, *a*, Represents the scalp turned down. *b*, *b*, *b*, The cut edge of the bones of the skull. *c*, The external strong membrane of the brain, the dura mater, suspended by a hook. *d*, The left hemisphere of the brain, shewing its convolutions. *e*, The superior edge of the right hemisphere. *f*, The fissure between the two hemispheres.

Dr Gall's discovery threw great light on the anatomy and physiology of the brain, and scientific men have given names to many parts, expressive of their functions.

The brain and spinal cord are in two equal and symmetrical halves, called hemispheres, one of which is contained within the right side of the skull, and the other in the left. Every essential part that is found upon one hemisphere is found in

a corresponding place on the opposite. See Diagram 11. Thus phrenologists have discovered about forty organs of mind in one hemisphere, and a corresponding number of similar organs on the other side; thus upwards of forty nerves

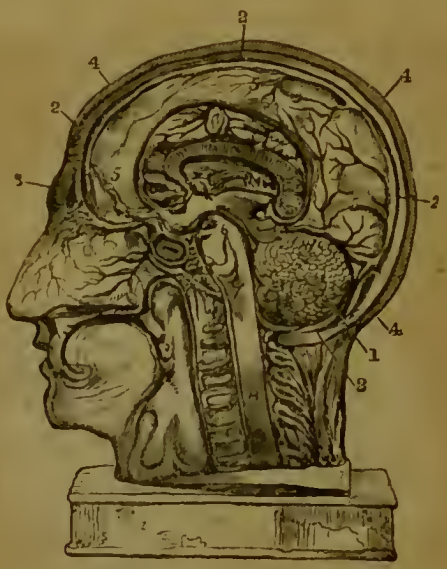


Diagram 11.—The Vertical Section of the Brain.

1. The cerebellum. 2, 2, 2, 2. The skull. 3. The frontal sinus. 4, 4, 4. The scalp. 5, 5, 5. The cerebrum. 6. The pons varolii. 7. The medulla oblongata. 8. The spinal cord.

proceed from one hemisphere of the brain and spinal cord to different parts of the body, and an equal number proceed from the other hemisphere in a similar manner. This explains why nervous diseases sometimes affect one side of the face and body, and not the other.

The division of the great organs of mind into hemispheres corresponds with the fact that all the organs of the body that obey the mind are double; so also are the organs of the senses that carry information to the mind. Thus we have two hands, two feet, two eyes, &c. The body, and particularly the face, may therefore be said to be divided into right and left hemispheres; and in this is a good illustration of the manner in which the brain is divided. The line which

divides the right from the left hemisphere is called the *median line*. The commissures of the brain are parts that extend across from one hemisphere of the brain to the other, and are evidently intended to produce unity of action between them; so that although the great organ of the mind is double, the operations of mind are single; and notwithstanding the organs of sense are double, the sensations are single. One side of the head cannot be angry while the other is pleased; one side cannot delight in music while the other is averse to it; but both hemispheres act together, as if they were one, which could not possibly be the case if they were not intimately united by means of the commissures. The largest commissure is called the corpus callosum; this may easily be seen by separating with the fingers the two hemispheres of the uncovered brain; a white mass, several inches wide and about half an inch in thickness will then be seen extending across from one hemisphere to the other, like a bridge.

Mr Combe says that he pointed out a convolution of the brain lying above the corpus callosum, extending from the bottom of concentrativeness to the organs of the intellect. This convolution Mr Solly has shewn to be a commissure uniting the posterior and anterior portions of the brain. This gentleman describes nine commissures—six transverse, two longitudinal, and one oblique. The annular protuberance is about one-sixth the size of the corpus callosum, and extends from one hemisphere of the cerebellum, or organ of amativeness, to the other, passing across the medulla oblongata, in such a manner as to be called sometimes the bridge of Varolius, or pons varolii.

We can only conjecture the use of the two commissures from their situation; the fact, however, that they are not found in some classes of animals seems to indicate that they are not so important as their size would lead us to suppose. Dr Spurzheim mentions two cases where the corpus callosum was rent entirely asunder, yet the manifestations of mind of the individual did not appear to be at all affected by it. There are three commissures at the base of the brain, which Dr Spurzheim considered the true commissures. They are the anterior, the middle, and the posterior, each of which is about the size of a goose-quill, and they cross, one in the front, another in the middle, and the third in the back part of the brain. Besides these commissures there is one in front

of the medulla oblongata—a decussation—that is, the fibres cross from one side to the other in such a manner as to resemble plaited straw, the hemispheres being entirely separated from each other by a membrane, except where the commissures cross.

There are several parts in the median line which do not seem to belong to either hemisphere, and their uses are unknown. One of these is called the pineal gland, and is about the size of a pea. This is the celebrated part where Descartes fancied the soul to reside, and it is situated just above the posterior commissure, and seems to be attached to it. Just above the same place are four small round bodies, known by the name of the quadrigeminal bodies. There may be seen also in the median line at the base of the brain, near where the optic nerves unite, two little round bodies, which, on account of their supposed resemblance to breasts, are called mamillary bodies; and near them is another, called the infundibulum, or funnel. The very names which these parts have received betray the total ignorance of anatomists concerning the offices which they perform.

The subdivisions of the hemispheres are into the cerebrum, the cerebellum, the medulla oblongata, and the spinal cord. The spinal cord is contained within the vertebræ or back bone, and extends from the lower part of the back, up to the medulla oblongata. It is considered by Sir Charles Bell as composed of three independent nervous columns, the anterior, the middle, and the posterior. The anterior column Bell considers as the medium through which the brain acts upon the muscles to produce voluntary motion. The middle he denominates the respiratory column, because it sends branches to all the organs of respiration, and the other parts that must act in harmony with them in speaking, laughing, crying, coughing, &c. He considers it as related to respiratory motion only, and not to sensation.

While we accord to Bell the merit of having first discovered that the spinal cord is composed of three columns, we cannot admit that he has proved that the middle column is exclusively devoted to respiratory motions, and the posterior to sensation. We doubt not that the principles unfolded in this work will lead to a more philosophical view of the true functions of these three columns, and their relations to the brain and body. Bell says "that the middle column stops

short in the medulla oblongata, not being in function related to the brain;" but we contend that it is as intimately and extensively related to the brain as either of the other columns, being the medium of communication between the middle lobe of the brain and the digestive and respiratory organs. It is not only in communication with the respiratory organs, but it also communicates sensations of hunger, thirst, and suffocation to the brain.

The posterior column, according to Bell, is composed of fibres that convey sensations to the brain. Thirty-one pairs of nerves proceed from the spinal cord to different parts of the body, each of which has two roots, one in the anterior or the column of voluntary motion, and the other in the posterior or column of sensation. As soon as the two roots leave the spinal cord, they unite into one nerve, and proceed on their way to different parts of the body, to which they are destined. These thirty-one pairs of nerves are remarkably regular in their origin, in their succession, and their distribution, but none of the fibres proceed from the middle column. Besides, there are ten pairs of what Bell calls irregular nerves, making in all forty-one pairs of nerves that proceed from the spinal cord.

The spinal cord is about the thickness of a man's finger; but when it enters the skull through the occipital hole, it gradually becomes larger until it reaches the brain. The part which goes through the occipital hole to the brain is called the medulla oblongata, on account of its oblong form. This oblongata is considered as the grand centre of communication between all parts of the nervous system. It is at the top or capital of the spinal cord, and joins it to the brain. If the brain may be compared to a rose, and the phrenological organs to its leaves, the medulla oblongata will represent the top of the stem where all the leaves originate, and the spinal cord the rest of the stem.

The medulla oblongata has three prominences—one in the anterior part, corresponding with the anterior column of the spinal cord; these are named the pyramids, on account of their form: the plural number is used to include both hemispheres, as there is in reality but one in each hemisphere. These pyramids Dr Spurzheim considered as the origin of the organs of intellect, in the anterior lobe of the brain, and he traced the fibres by dissection from the anterior column or

pyramids of the oblongata, to the anterior lobe of the brain. In the middle column of the oblongata are two eminences (one in each hemisphere), which on account of their fancied resemblance in shape to olives, have received the name of olivary bodies. We consider them as the origin of the fibres that constitute the middle lobe of the brain, and by dissection they may be traced into it.

In the posterior column of the oblongata are the two restiform bodies (one in each hemisphere), so named on account of their resemblance to cords. These give origin to the cerebellum and the posterior lobe of the brain. The cerebellum, or little brain, is about one-seventh the size of the cerebrum or brain proper. It is situated on the lower back part of the skull, and gives a fulness to the upper part of the neck. (See Diagram 11.) It is separated from the brain proper by a thin membrane called the tentorium, and joined to the medulla oblongata by the fibres of the restiform bodies. The cerebellum is the organ of amativeness; and notwithstanding its size would seem to proclaim its importance, no other use for it has been discovered, although it has been the subject of many experiments and conjecture.

The cerebrum, or brain proper, is by far the most important of the subdivisions, as it contains all the phrenological organs that have been discovered, except one. The cerebrum consists of three lobes in each hemisphere. The anterior occupying the forehead, the middle the sides, and the posterior the back part of the skull. This is in remarkable agreement with the three columns of the spinal cord, the three eminences or columns of the medulla oblongata, and the three commissures which have been described.

The evident division of the organs of the mind into three classes has hitherto been overlooked. It will, however, tend to much practical good in the treatment of nervous diseases.

There are four cavities or ventricles in the interior of the brain, one in each hemisphere, called the great lateral ventricles, and two the median line, between the hemispheres, the foremost of which is the third, and the space between the cerebellum and cerebrum is the fourth. The mouth of each ventricle is toward the median, so that when (in consequence of disease) water collects in one cavity, it flows out in the other of the opposite hemisphere, until, in some extreme cases, the whole brain becomes distended like a bladder—the convolu-

tions upon the surface are unfolded—the skull bones separate, and all the coverings of the head give way and grow larger, to make room for the increasing contents, until the head assumes nearly twice the usual size. The under surface or floor of the ventricles is irregular and winding, in some measure corresponding to the three lobes. The appearance has been denominated tricornea, or three horns, on account of the ventricle extending its windings in three directions—anterior, middle, and posterior.

In the forepart of the bottom of the ventricle is the corpora striata, or striped body—an eminence resembling half a pear, with its largest end in the front lobe, and its opposite end pointing outward and backward.

The optic thalami is another eminence, larger than the striata, and situated just behind it. There are also several other appearances, or parts in the ventricles, which have received fanciful names, but nothing is known of their use, such are the hippo-campus major, and hippo-campus minor, &c.

The surface of the brain shews it to be composed of cineritions or ash-coloured substance, of a pulpy consistence, which seems to be almost entirely composed of a tissue of exceedingly minute blood vessels. If a cut is made so as to expose the internal white substance, instead of being pulpy, like the cineritious substance, it is fibrous, and resembles in firmness and structure the nerves of the body. The cineritious substance is found in small quantities in the interior of the brain, but it is principally upon the outside; and surrounds the brain, as the bark surrounds a tree, and it has therefore been named the cortical or bark-like substance. It was the opinion of Dr Spurzheim, that the cortical substance was the nourisher of the medullary; but nothing positive is known on the subject.

The convolutions of the brain are the folds bounded by deep furrows upon the external surface of the brain. In forming animals nature seems to have proceeded with as much uniformity as in forming the solar system. We find animals continually increasing in intelligence; and as we proceed up the scale, the brain, to use the words of Dr Conolly in the *Edinburgh Review*, "is observed progressively improved in its structure, and with reference to the spinal marrow and nerves, augmented in volume more and more, until we reach the human brain:" and it is a remarkable fact that man seems to

pass through every gradation of animal existence. His heart is at first a mere pulsating vessel, like that of an insect; then a sack, like that of a fish; then two sacks, like that of an amphibious animal; then a regular double heart: so the human brain presents appearances analogous to the brain of fishes, then to that of birds, then to that of the mammalia, and finally becomes, by the addition of new portions, a proper human brain, and is such at birth, and according to Sommering, has no convolutions till the sixth or seventh month of gestation, being in this respect like the brain of mature fishes and birds, in which convolutions are never found; convolutions then begin to appear, and gradually enlarge to adult age. If the progressive development of the brain be stopped before it has arrived at the advanced stage of a proper human brain, the child is born with an imperfect cerebral capacity; hence, either partial or complete mental or moral idiocy, or both, will be the result. We find that moral idiocy is caused by a defective coronal region of the brain, and mental idiocy by a defective anterior lobe of the brain.

The brain comes to maturity at different ages in different persons; seldom before the age of twenty, and sometimes, according to Dr Gall, not before forty.

A good-sized matured brain in man weighs 3 lb. 8 oz., in woman 3 lb. 4 oz. The brain of distinguished men is very often heavy; Cuvier's weighed 3 lb. 10 oz. 4½ drm. It was stated by M. Berard that none of the gentlemen present at the dissection of Cuvier's brain remembered to have seen one so complicated, or with convolutions so numerous and compact, or with such deep anfractuosities; these last were stated as an inch deep. Low, debased criminals have very small, narrow, and shallow convolutions in the moral region. Hence, their moral idiocy. The convolutions appear intended to increase the superficial extent of the brain without enlarging its absolute bulk.

Every convolution is not an independent and distinct phrenological organ; it is not therefore true, as some suppose, that each phrenological organ may be separated from the rest of the brain by dissection. Anatomy shews the perfect agreement between the structure of the brain, so far as it is understood, and the organs of the mind. A skilful phrenological anatomist can readily point out the particular convolutions that constitute each organ; but no anatomist can trace the organs

beneath the surface of the brain, and shew the boundary between them there. We study the structure of the brain to find an explanation of well-established phrenological facts, and not to find evidence of its truth.

Phrenology was not discovered by dissection of the brain; but by observing the agreement between the dispositions of men and the lower animals, and the forms of their heads. The brain was afterwards dissected, and its structure examined with great care, in the hope that it would shed some new light upon the subject. Anatomy has been of little use to Phrenology; we are indebted to Phrenology for all useful knowledge concerning the anatomy of the brain. So far as the anatomy of the brain is understood, it is in beautiful harmony with Phrenology; but it is a great mistake to suppose that Phrenology is dependent upon anatomy for evidence by which to establish its truth. Those opponents who object to Phrenology, because it cannot be proved by dissection, evince an unpardonable ignorance of the subject. Most people cannot understand why so many medical men, who are supposed to know the nature of the brain, disbelieve in Phrenology: the truth is, they are not on that account better able to judge concerning the truth of Phrenology than those who are entirely ignorant upon that subject. Any man who is capable of perceiving the forms and sizes which the head assumes in different individuals, and comparing their developments with their conduct, can judge of the truth of Phrenology as well as the most eminent medical professor.

Haller was of opinion, that the brain is supplied with one-fifth of all the blood of the body; but according to Dr Munro with one-tenth. In either case the supply is very great. The general opinion, however, of anatomists and physiologists is, that the amount of blood which the brain receives is about four times greater than that of any other organ of equal bulk. This astonishing fact proclaims the great importance of the arterial system and organs of respiration to the operations of mind. The blood enters the brain by four different passages—two in front, called the right and left carotid arteries; and two in the back of the head, called the right and left vertebral arteries. It is curious to observe the contrivance which prevents the blood from entering the delicate mass of the brain too suddenly and forcibly. Before the arteries are permitted to enter the skull, they are made to traverse several windings,

and almost retrograde passages, and encounter several obstructions that serve to check the force of the current. The blood then enters the skull through four different arteries, and all unite at the base of the brain to form one great depôt, which, though not exactly in the form of a circle, is denominated the circle of Willis, and it is from this circle that the blood finally takes its departure to enter the substance of the brain.

Although the blood enters the brain by four different channels, it is all returned through one great vein, the longitudinal sinus, which is situated in the median line between the hemispheres. It commences near the organ of individuality, and follows the skull over to the lower part of philoprogenitiveness; it then divides into two branches, one passing to the right, and the other to the left, which leave the skull near combativeness. The course of this great sinus may be traced on the inner surface of the skull by the deep impressions it makes in the bone—particularly in the back part, where it is much larger than in front, in consequence of the numerous veins which empty into it.

The brain is embraced by three membranes—the pia-mater, or soft mother, so called from the belief that all the membranes of the body sprung from it; the *tunica* arachnoida, so named on account of its resemblance to a spider's web—this embraces the brain like network; the dura-mater, or hard mother, a thin but strong membrane which covers the tunica arachnoida, and sinks down between the median line, and adheres strongly to the inner surface of the skull. The brain enclosed in these membranes so exactly fills the interior of the skull, that a cast in plaster of the interior of the skull is a fac-simile of the brain covered with dura-mater.

The skull is the bony case, composed of three layers—a very compact one internally, a less compact one externally, and a cellular layer, called the diploe.

Now the external surface of the skull corresponds almost exactly with the internal, except in a few points. The departure of parallelism, where it occurs, is limited to one-tenth or one-eighth of an inch. The integuments, or coverings of the skull, lie close to its surface, and are so uniform in thickness as to exhibit its true figure. Thus, then, there is generally no practical obstacle to the discovery of the form of the brain by the form of the skull.

The skull is very thin at the orbital plates and at the squamous portion of the temporal bone: it is thick at the ridges of the frontal and occipital bones; but this is always the case, and therefore presents no difficulty. One part of the brain, however, does sometimes present a difficulty. There is a cavity called the frontal sinus; it is above the nose, and is found between the external and internal surface of the skull, as marked in Diagram 11. The size of this sinus varies; but it must be borne in mind that it only interferes with five organs —form, size, weight, individuality, and locality. Below the age of twelve years it does not exist; and, as the five organs mentioned are generally very active before that age, the sinus cannot interfere with our observation of them before that period. The sinus, therefore, presents no difficulty in the way of the size and functions of these organs, if we study subjects below twelve years of age. Now the opponents of Phrenology have always concealed this fact. We shall again allude to the frontal sinus when we come to the range of organs which may be interfered with by its size.

It should be remembered, that phrenologists do not pretend to tell the power of an organ when the brain and skull are diseased. They make their observations on healthy individuals in the prime of life. It is therefore utterly futile to bring against us morbid specimens. In disease of the brain the inner table of the skull sometimes recedes and not the outer, the space being often filled with bone, rendering the skull very thick.

Many who are not acquainted with the laws that govern organic development seem perplexed with the fact of an infant's skull being enlarged to the size of an adult skull. Two processes are ever going on in the human system—deposition and absorption; by the first of which new particles are laid down, and by the second, old ones taken up. The skull, then, is ever changing its structure to accommodate itself to the size of the brain; and it is a remarkable fact, worthy of notice, that throughout organised nature the hard parts yield to the soft. Thus large lungs produce a large chest, not a large chest large lungs; so the skull is formed to the brain, not the brain to the skull. At first the brain is covered by a mere membrane, in which bone at length begins to be deposited. The deposition commences at particular points, and bony rays shoot from these centres (which are called the centres of ossification) in all

directions, just as we see the formation of ice upon water. It is not till some time after birth that ossification is complete.

The reader should make himself acquainted with the general anatomy of the skull, otherwise he will be at a loss to understand the reference occasionally made to its particular parts. The bones of the skull-cap, the cavity which contains the brain, are as follows :—1, the frontal bone, which forms the upper part of the head ; 2, the two parietal bones, which lie between the frontal and occipital, and form the sides and top of the head ; 3, the two temporal bones, which lie in the temples, and form the lower parts of the sides of the skull ; 4, the ethmoid bone, which lies in the base of the skull, immediately over and behind the nose ; 5, the occipital bone, which forms the lower and back part ; 6, the sphenoid bone, which lies between the ethmoid and occipital bones, and supports the

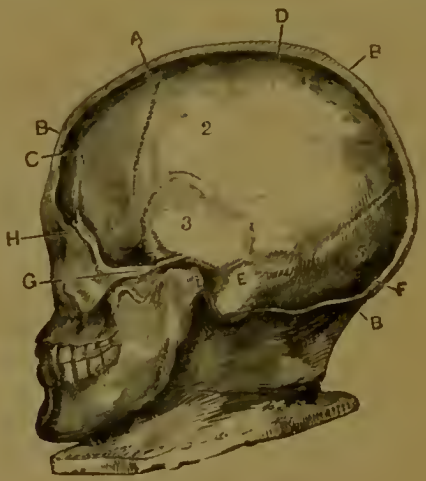


Diagram 12.—The Skull.

B, B, B, The scalp which covers the skull; C, the centre of ossification of the frontal bone; D, the centre of ossification of the parietal bone; E, the mastoid process; F, the occipital process; G, the centre of zygomatic arch; H, the superciliary ridge of the frontal bone.

centre of the brain. These bones are united by seams or sutures. A, the coronal suture runs between the frontal bone and parietal bones, the lambdoidal suture between the parietal and the occipital, and the sagittal suture between the two parietals, along the centre of the head, stretching from the

coronal to the lambdoidal suture. The temporal sutures join the temporal bones to the parietal, occipital, and frontal bones. The sphenoidal and ethmoidal sutures connect these two bones to each other and to the rest. It is necessary to know the place of the sutures, as they frequently produce ridges that are mistaken for developments of brain. They may, however, be easily distinguished by their angular, abrupt appearance. There are also several processes or prominences of the skull that are frequently mistaken for phrenological organs. One of these is the mastoid process, just behind the ear. This is sometimes mistaken for combativeness, but it is below the organ. Another is the occipital spinal process, situated below philoprogenitiveness, which is frequently taken for this organ. This process, however, is a good guide to the correct situations of philoprogenitiveness and amativeness; the former is immediately above it, and the latter below, between this and the mastoid process. By drawing a curved line, as seen in the model head, from the occipital to the mastoid processes, you can correctly ascertain the projection and depth of the occipital swelling, which will enable you to estimate the size of the cerebellum.

ON THE GEOMETRICAL AND NATURAL LAWS WHICH GOVERN ORGANISED FORMS IN THEIR FUNCTIONAL QUALITIES.

After the foregoing brief notice of the temperaments and the anatomy of the brain, we shall now direct our attention to deduce the laws which regulate human nature mentally, morally, and physically. We have devoted more than twenty years to the investigation of this department of our subject. In the course of this investigation we found it necessary to make ourselves acquainted with the habits and peculiarities of the lower animals. We directed our attention to nature in her humblest organised forms, and traced her up, step by step, to man, the noblest of God's works. Through all this labour and study we perceived certain forms of brains, going higher in geometrical quantities, in the exact ratio that the animal advanced in the scale of instinctive sagacity, and that each species had a form of brain in strict accordance with its natural characteristics. From this we were led to observe that the brains of human beings had each a peculiar shape; some resembling in a degree the brains of various animals. This

led us to the fact that, as the brain of an individual approximated in form to that of any particular species of animal, his conduct was distinguished by the natural peculiarities of that animal.

THE BASILAR PHRENO-METRICAL ANGLE.

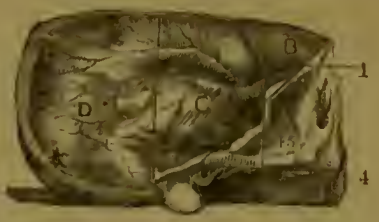


Diagram 13.—Base of the Skull of a Murderer.

The basilar phreno-metrical angle A 45 degrees; B, the anterior lobe; 2, the vertical line from the zygomatic arch; C, the middle lobe; D, the posterior lobe.

The above illustration will enable the reader to understand the nature and meaning of this angle. It will be seen in Diagram 13 of the base of the skull that 1 points out the super-orbital plate on which the anterior lobe of the brain rests. 3 shews the base of the middle lobe of the brain. The line from 1 to 3 shews how much the base of the middle lobe is below the base of the anterior lobe. The line from 3 to 4 forms an angle with the line 1 to 3; and we have found that the average of this angle in the human brain is 25 degrees on the quadrant. From this degree the angle gradually increases up to 45 degrees, the average of the murderer being 40 degrees; now, this angle indicates the size of the destructive propensity that we possess in common with the carnivorous animals, 25 degrees being the proper angle of a human being. My attention was first called to this angle in my rambles among the tribes of the Indians of North and South America. On my first meeting with these children of nature, I was particularly struck with the low position of their ears in relation to the eye-brow. After much careful observation and experience, I found that those tribes who were the most remarkable for the destructive propensity had their ears placed at an angle of 45 degrees in relation to the eye-brow. This important fact suggested the idea that, as the low posi-

tion of the ear is the sign, in the Indians, of the destructive propensity, the murderer in civil society may have his ear placed in a similar position, and I have found it to be the case in all the murderers I have seen. In the degree that the angle is below 25 degrees, we find energy of character to decrease in the same ratio. We have met with persons whose angle was not indicated. In a lady, one of the nuns of the convent in Everton, we found she had only an angle of 5 degrees. We may here observe that it was through the influence of Dr O'Donnell of Liverpool, that I was permitted, as a scientific investigator, to try with my mathematical instrument—which I name the phreno-physiometer—the head of this lady. My object in going to this institution was to search for facts to establish the perfect geometrical female type of head; and, when my object was made known to the authorities, I was freely granted permission, and I wish thus publicly to return my thanks. I have met with persons with highly-developed mental and moral qualities, so small in the angle that they were practically destitute of energy to give effect to their higher powers.

Two gentlemen called upon me a short time since with a boy six years old. His head over the ears was not by any means wide; in fact, to have judged without regard to the angle, destructiveness would have been pronounced small. When I placed my instrument to his head I found his angle 38 degrees. I remarked to the gentlemen that the degree of his angle indicated large destructiveness, and that I should expect that he would shew a tendency to acts of violence. They stated that I was perfectly right; that only the day before he had made an attempt upon the life of his father, and a few days before that he had made a similar attempt on the life of his brother and sister. The gentlemen brought the lad to test Phrenology, as they conceived that his head indicated small destructiveness. After being fully satisfied upon that point, they requested me to put my instrument on their heads. The first that I tried, his angle registered 11 degrees, and the other 14 degrees. I informed them that they were both wanting in destructiveness, which they admitted. But, said they, we have been told that we had large destructiveness by one who professed to be a practical Phrenologist; but our feelings and actions were entirely the reverse, as neither of us can bear to inflict pain, or witness it done by others. I told

them that I could well understand how the mistake had been made, as they were both wide over the ears, and that width had been taken for destructiveness.

Another remarkable case came under my observation some time ago. A lady and gentleman brought a youth 14 years of age for my opinion of his natural disposition. I found his angle 40 degrees, the base of the brain very large, and the moral region small. I asked if he was their son, and on being informed that he was, I intimated that he had a most dangerous type of head, and that he was not a fit subject to be at large, as he was liable to commit crimes of a most heinous character, and that I had found that individuals with his type of brain manifest a marked preference to take life by poison. The father and mother without hesitation stated that he had the day before robbed the drawer of sixty-eight pounds, and that morning he had made an attempt to poison them, and they only escaped by an accident—in consequence of the servant letting fall the dish which contained the poison, and the dog died shortly after eating it off the floor, which led to an investigation, and it was found that the food contained arsenic, which the boy had procured through two females from a druggist. His head was of a similar type to that of Palmer, and his character, so far as it had been developed, strikingly resembled that of that most notorious criminal.

Dr Spurzheim used to say that phrenologists made good hits, as chance might turn out, when they ventured to predicate the character of persons whose heads they might be examining. I was forcibly struck with this remark more than twenty years ago; and it appeared to me most singular that a phrenologist so eminent as Spurzheim should have so little confidence in the practical art of the subject to which he clung with such determined tenacity. But I soon discovered that Spurzheim was right, as I found no defined rule agreed upon by phrenologists as to what constituted the size of a phrenological organ in reference to a geometrical standard of the configuration of the human head. Hence I felt convinced, that any inference drawn from that which was not geometrically defined could not be depended on, as there was no established data. In the science of numbers I found it an established fact that we cannot understand the value of 20 until we have determined the value of 1: so it is with the human head. To infer the size of an organ, without having first determined the

geometrical quantities that constitute a human brain, is as void of practical certainty as the value of 20 before we have determined the value of 1.

This matter-of-fact view of the subject struck me that there was more in it than phrenologists had yet conceived; and, I felt satisfied, to proceed on such uncertain ground was more empirical than scientific, and could lead to no sound results. I therefore resolved to track a course for myself, and take geometry for my chart and compass; and so far success has exceeded my most sanguine expectations.

We will now define the geometrical quantities that constitute the perfect type of the human head. But before a correct idea can be formed of the geometrical configuration of this perfect type it will be necessary to give its various measurements.

THE PHRENO-PHYSIOMETER.*

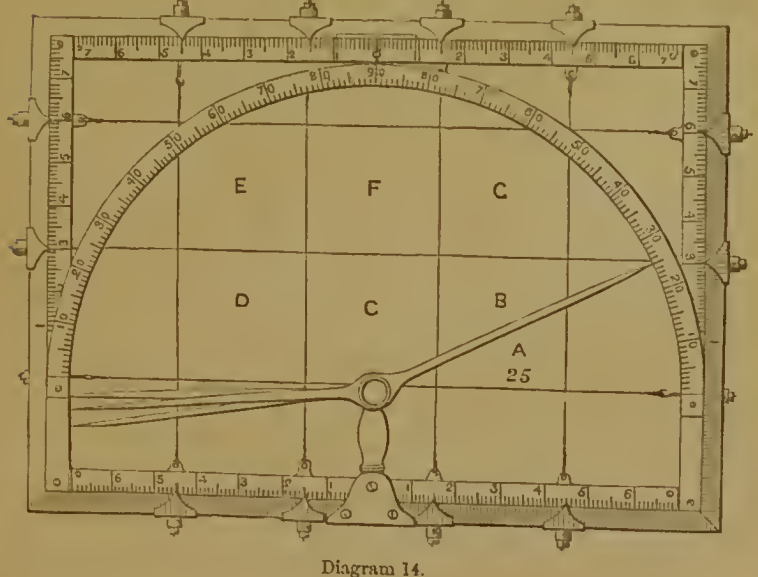


Diagram 14.

The phreno-physiometer is the mathematical instrument

* I may observe, that Diagrams 14 and 15 represent only a side section of the Phreno-Physiometer.

with which we determine the absolute and relative quantities in position of the different regions of the brain. The diagrams of this instrument are reduced to a scale of 1-5th their size, the same as the diagrams of the heads. This instrument is constructed upon a principle which renders its application easy and practical. The frame is mahogany, on which are laid plates of brass, divided into scales of inches and tenths. The slides on the sides, to which wires are attached, move on springs, and register the quantity in each region. The half-circle is in two sections, and each is divided into 90 degrees. The pointers indicate on the quadrant the degree of the basilar phreno-metrical angle. It will be perceived that the sections B, C, D, E, F, G, are six squares, 3 inches each. A is the basilar phreno-metrical angle 25 degrees.

The centre upon which the pointers move is placed upon the *tragus*—the small cartilaginous eminence at the entrance of the external ear, on which the hair often grows like the beard of a goat (TRAGOS, the Greek name for goat). The horizontal base line, at the centre of which the pointers move, stands at the commencement of the scales on the side of the instrument. The next is the line drawn from the centre of ossification of the frontal bone, which indicates that the depth of the base of the brain, B, C, D, is 3 inches with the basilar phreno-metrical angle, A, 25 degrees; E, F, G, are the sections of the coronal region, being 3 inches deep, making the height of the head 6 inches from the base line. The sections, B, G, shew the side or lateral depth of the anterior lobe and the vertical lines, which at $4\frac{5}{10}$ inches and at $1\frac{5}{10}$ inches indicate the side depth of the anterior region from the centre of the zygomatic arch. The two vertical lines which stand at $1\frac{5}{10}$ inches indicate the side depth of the middle lobe, from the centre of the zygomatic arch to the mastoid process, D, E, the posterior region from the mastoid process backward. Now, it will be perceived that the sections B, C, D, E, F, G, are equal in quantities, the nature of which is fully explained at page 49.

Diagram 15 shews the quantities in position of the various sections of the head of Palmer. First, the basilar phreno-metrical angle, A, is 40 degrees; second, the depth of the base of the brain is 4 inches; third, the coronal region is $1\frac{2}{10}$ inches, which shews the great excess of the basilar region, particularly in the middle lobe, section C, which is the region

of the propensities which played so prominent a part in his criminal career.

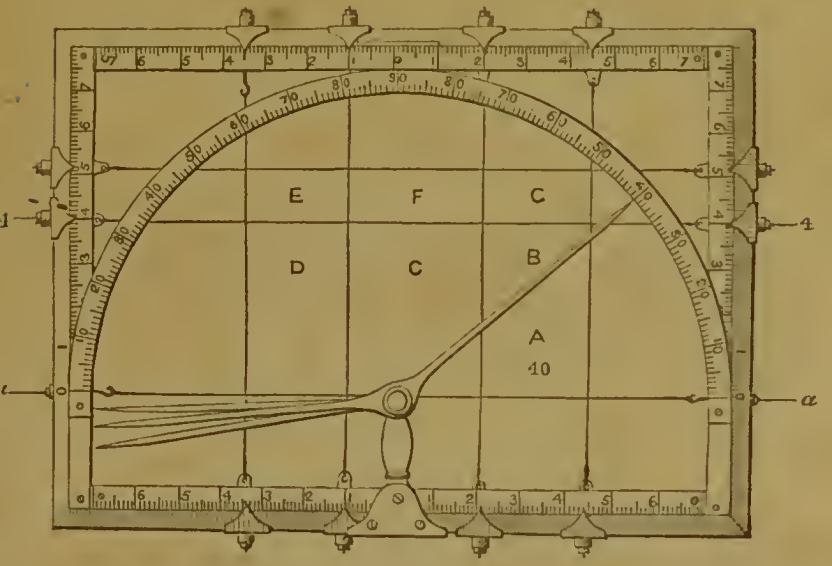


Diagram 15.

In the section G in the diagram of Palmer's head there is number 67. This number indicates that the frontal phreno-metrical angle is 67 degrees in the head of Palmer. This angle shews the retreat of his forehead: with this and the side depth of the anterior lobe, the height of the forehead from the top of the nose to the upper part of causality and its breadth, we estimate what degree the perceptive organs and the reflectives bear to each other. In the following diagram of Napoleon, from the cast taken after death, the side depth is $3\frac{2}{10}$ inches, and the frontal phreno-metrical angle 77 degrees, the average of the side depth being $2\frac{5}{10}$ inches, and the average of frontal angle about 75 degrees.

We are able with the phreno-physiometer to determine with perfect certainty in which region the greatest quantity of brain is situated. The basilar phreno-metrical angle is the data from which we determine the geometrical configuration

of the brain, and the absolute and relative quantities in position of its various sections, and from which we infer the particular type of brain of each individual, and to what class it belongs: whether it be that of the murderer, the freebooter, the petty thief, the swindler, or the mental and moral class. Hence the classification of human beings, whether juveniles or adults, will be found of great practical importance in the treatment of criminals, as well as in conducting the education of youth.

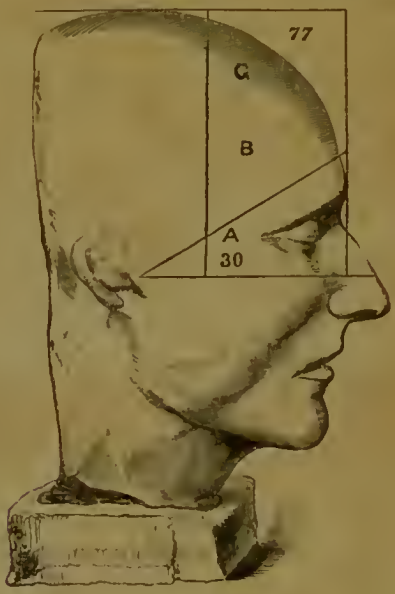


Diagram 16.—Napoleon, from a cast taken after death. Reduced to 1-5th.

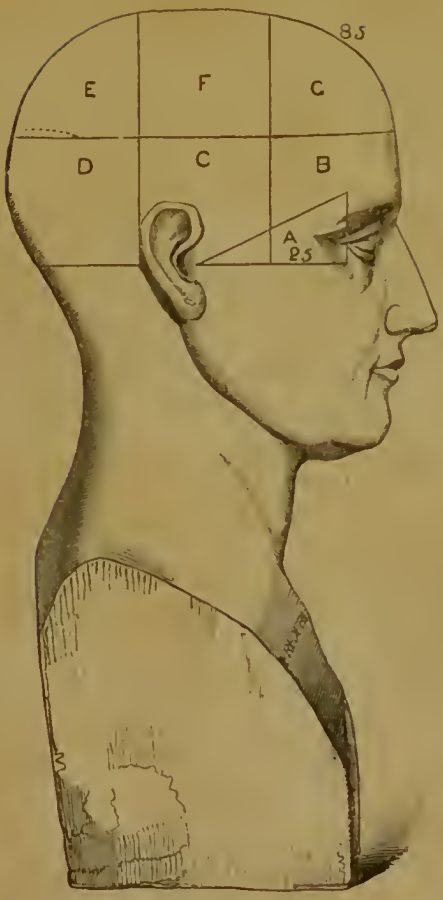


Diagram 17.—Side View of the Model Head, divided into Sections.

A The basilar phreno-metrical angle.
B The anterior basilar section.
C The middle basilar section.
D The posterior basilar section.
E The anterior coronal section.
F The middle coronal section.
G The posterior coronal section

THE MODEL HEAD.

THE perfect human head is composed of equal quantities, in each section of the brain, in the following order. For the purpose of illustration we will take a head, of which the mea-

surements are without fractions. The measurement of the head from the occipital bone to the centre of the forehead, 9 inches; the width of the head above the ears, 6 inches; the depth of the base of the brain from the opening of the ear to the horizontal line drawn from the centre of ossification of the frontal bone to the back of the head, 3 inches; the depth of the moral region, from the line drawn from the centre of ossification of the frontal bone, 3 inches; making the height of the head 6 inches from the orifice of the ear; the lateral depth of the anterior lobe from the forehead to the centre of the zygomatic arch, 3 inches; from the centre of the zygomatic arch to the mastoid process, 3 inches; from the mastoid process to the occipital bone, 3 inches; the basilar phrenometrical angle 25 degrees. It will be seen that these proportions are in perfect harmony, and constitute an equilibrium. The size of the head as a whole is not the standard by which

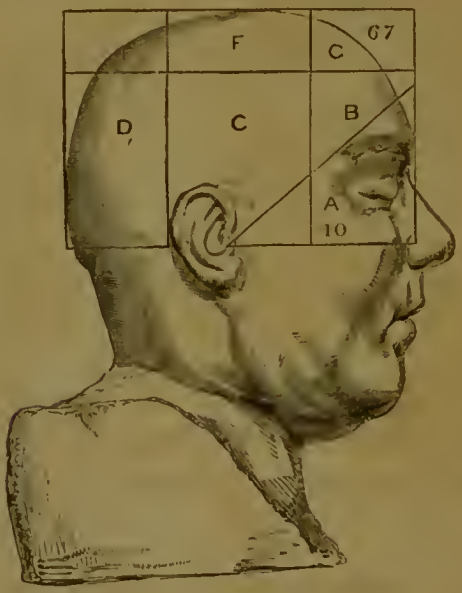


Diagram 18.—Side view of William Palmer. Reduced to 1-5th.

you are to be guided, but the relative proportions, in geometrical quantities, that one section of the head bears to another. Hence, quantity of brain in position is the rule by which we

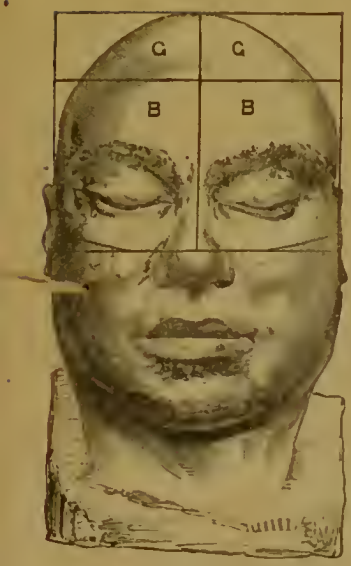


Diagram 19.—Reduced to 1-5th.
Front View of William Palmer.

Diagram 20.—Reduced to 1-5th.
Back View of William Palmer.

are guided in estimating its configuration. Now, contrast this perfect head with that of Palmer: in him, from the occipital bone to individuality 8 inches, the width of the head above the ears $6\frac{6}{10}$, the depth of the base of the brain from the opening of the ear 4 inches, the depth of the moral region $1\frac{2}{10}$, and from this deduct $\frac{6}{10}$ for the thickness of the skull and the integuments, and there remain $\frac{6}{10}$ for the depth of the moral region to contend against 4 inches of the base of the brain, and an angle of 40 degrees, being 15 degrees above the average.

Diagram 21.—Reduced to 1-5th.
Top View of William Palmer.

The next illustration is the head of Thurtell. The phreno-

logical development of this head has been urged as an objection to Phrenology, and to this day we meet with persons who

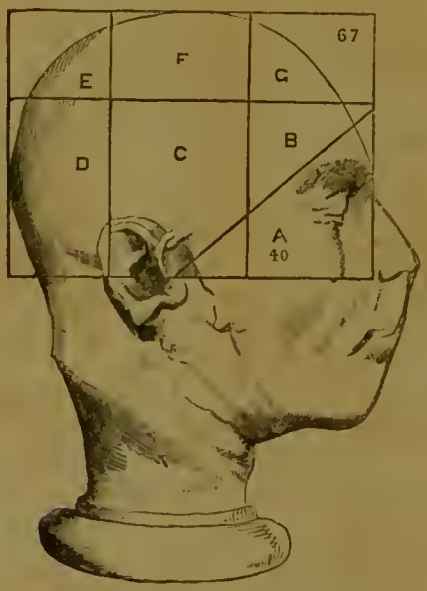


Diagram 22.—Thurtell. Reduced to 1-5th

quote it as evidence against that science. We will see how far this is true. In the first place we find the basilar phrenometrical angle 40 degrees, and the depth of the base of the brain, from the orifice of the ear to the line drawn from the centre of ossification of the frontal bone 4 inches, the depth of the coronal region from the above line $1\frac{5}{10}$, but conical, hence there is little absolute volume in this region. From individuality to the centre of the occipital bone $8\frac{3}{10}$ inches, the width of the head over the ears $6\frac{5}{10}$ inches. It will now be seen that Thurtell had a basilar brain of the perfect murdering type. The fact of this head being pronounced a case against Phrenology is not at all surprising. The rule by which many persons, laying claim to a knowledge of Phrenology, judged of the moral qualities of a head was by the height of the head from the opening of the ear, having no means of determining the relative size between the basilar and the coronal regions: according to this method of judging,

Thurtell would have seemed a better man than persons whose moral qualities were of the highest order, but whose heads

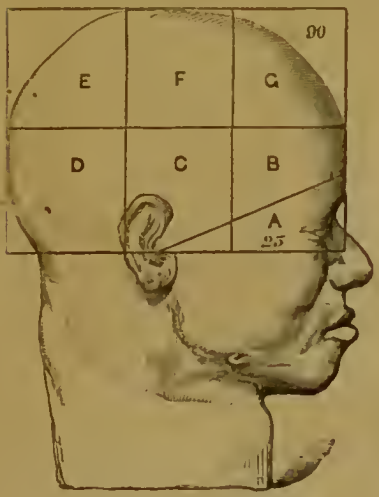


Diagram 23.—Reduced to 1-5th.
Side View of Eustache.

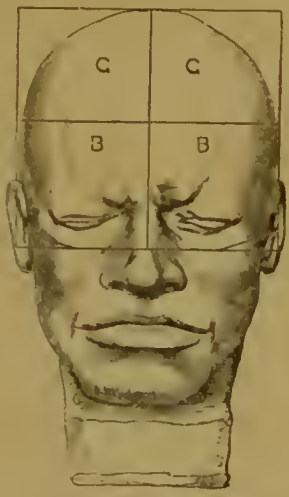


Diagram 24.—Reduced to 1-5th.
Front View of Eustache.

were less in height than his. For example, Eustache, the benevolent negro, the height of whose head from the opening of the ear is the same height as that of Palmer, but the depth of the basilar region of Eustache measures only $2\frac{6}{10}$ inches, while Palmer's is 4 inches. The depth of the moral region of Eustache is $2\frac{7}{10}$ inches, that of Palmer $1\frac{3}{10}$ inches; the width of the head of Eustache over the ears 6 inches, that of Palmer $6\frac{6}{10}$; the basilar angle of Eustache 25 degrees, that of Palmer 40. The same excess of the animal feelings over the moral qualities we find in Thurtell; hence, instead of his head being a case

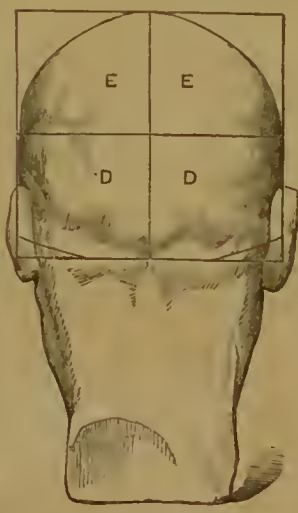


Diagram 25.—Reduced to 1-5th.
Back View of Eustache.

against Phrenology, it is one of the strongest proofs in its favour. Many say he was a man of intellect—so he was, of the perceptive class—for his defence on his trial is a striking instance of his want of the reflective faculties; but what of that?—a man may be highly intellectual, yet a most complete villain, as our police reports too amply attest. Palmer was considered by many a man of intellect; but let any one trace his career, and the most miserable want of the reflective powers is visible in every step of his eventful life. There was, however, a popular notion in society about the time of his trial, that he was a remarkably clever man; there cannot be a doubt that he manifested great *perceptive* acuteness, and remarkable cleverness in making use of people to serve his ends, but that does not shew high-class intellect, but simply low, cunning cleverness, that enabled him to gain a temporary advantage without any regard to ulterior consequences. His career on the turf fully attests that he was a man almost totally void of practical judgment; and the talent for tracing causation to ulterior modes of operation and moral consequences was fully shewn in his perfect want of conception of the law which regulates moral and physical evidence in relation to crime. Compare the head of Palmer with that of George Combe, and the difference in geometrical configuration and relative quantities in position will be found in exact ratio (all other conditions being equal) to the difference of their mental and moral manifestations. All the manifestations of Palmer were those of a low, unprincipled, selfish animal, while Combe manifested all the qualities of a high-minded, intellectual, and moral philosopher.

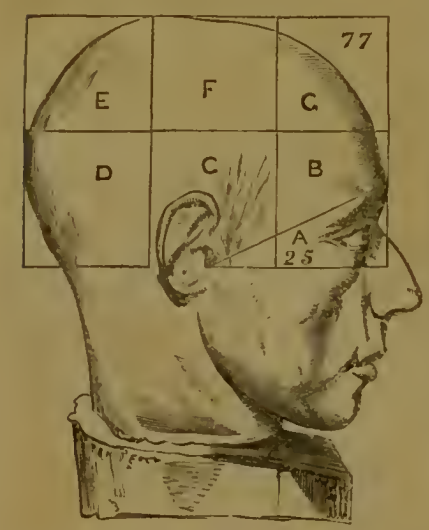


Diagram 26.—Side View of Mr George Combe. Reduced to 1-5th.

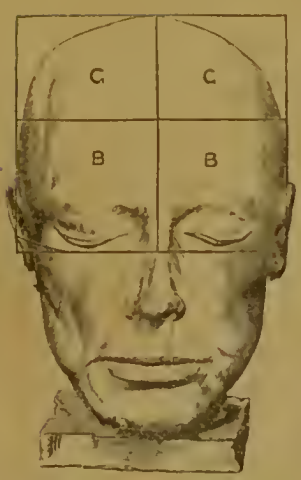


Diagram 27.—Reduced to 1-5th.
Front View of Mr George Combe.

Diagram 28.—Reduced to 1-5th.
Back View of Mr George Combe.

The next diagram is that of Dove, executed at York for the murder of his wife by poison. The great deficiency in the mental and moral regions of Dove, B, E, F, G, is obvious. The basilar phreno-metrical angle, A, 40 degrees, and the depth of the base of the brain 4 inches. The type of this head is that of a low, vicious, partially mental and moral idiot, who ought not to have been allowed personal liberty. His conduct from childhood was vicious. He delighted in putting into the eyes of animals red-hot wire and vitriol: in fact, his whole career from childhood to the poisoning his wife was one series of vicious tricks, and was strictly in accordance with the formation of his head. The attempt to prove that Dove was insane did not succeed. Insanity, as generally understood, is a mode of irrational conduct caused by a diseased action of the brain. Now, the irrational conduct of Dove was not from a diseased brain, but from its organic defect. Hence, his irrational conduct may be properly termed *idiotic insanity*, in contradistinction to the insanity from diseased action of the brain. This distinction is of great importance in the investigation of cases of insanity; and I feel convinced that had the case of Dove been put in its true light, he would not have been hanged. It is a common remark with regard to the actions

of Dove, that he knew what he was doing when he poisoned his wife. No one will dispute the fact; but it should be remembered that he was too low in the reflective organs and the moral sentiments to understand the moral consequences of his actions. The monkey and the dog know when they do

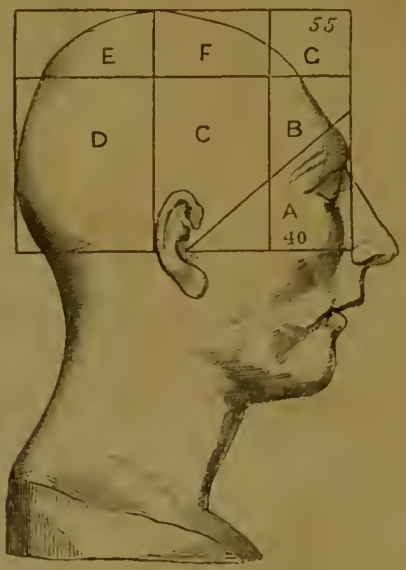


Diagram 29.—Dove. Reduced.

wrong, and avoid their master from fear of being punished. But no one for a moment supposes that those animals do so from a knowledge of the moral consequences of their actions. Neither did Dove: and it is high time that the brutal and disgraceful system of hanging should have an end. The hanging system only shews to what extent society at large is under the dominion of the low, brutish propensities. The taking away of human life is revolting to the moral and religious feelings, and can only afford gratification to the low propensities that a *certain class of society possess in common with the most ferocious of the carnivorous tribes of animals.* Hence, the taking of human life has no other tendency but to render the moral nature of man callous, and stimulate the most dangerous of his propensities.

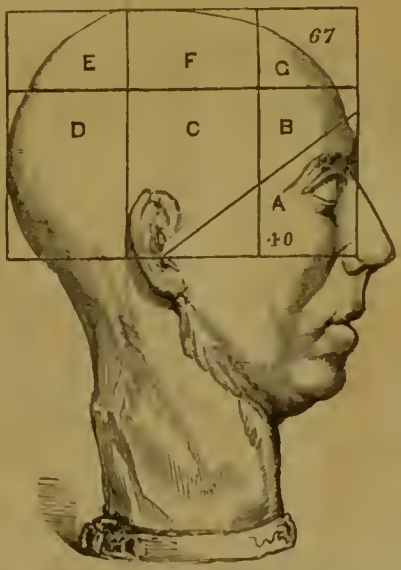


Diagram 30.—Side View of Robert Marley. Reduced to 1-5th.

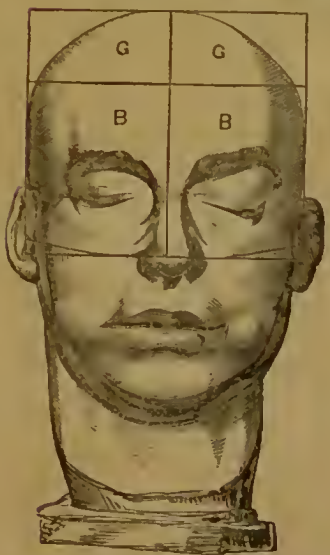


Diagram 31.—Front View of Marley. Reduced to 1-5th.

Diagram 32.—Back View of Marley. Reduced to 1-5th.

This is the type of the brigand and desperate freebooter.

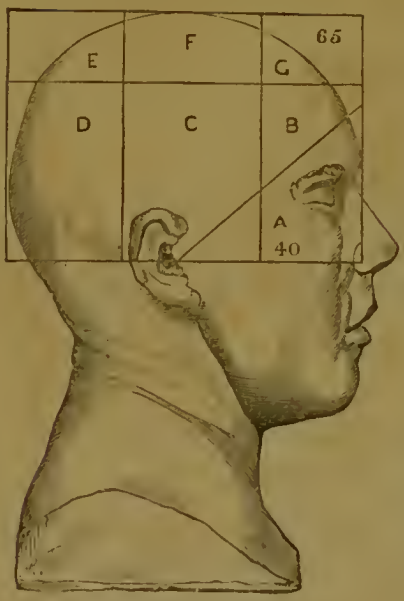


Diagram 34.—Barbour.
Reduced to 1-5th.

Here we have 40 degrees in the basilar phreno-metrical angle and a low moral region. The ticket-of-leave system is evidently wanting in the means by which to determine the natural tendencies of the criminals permitted to go at large. But this difficulty may now be overcome, and criminals classified with practical certainty.

James Barbour, executed at York for murder at Sheffield. The basilar phreno-metrical angle 40 degrees, the base of the brain very large, and the coronal region small.

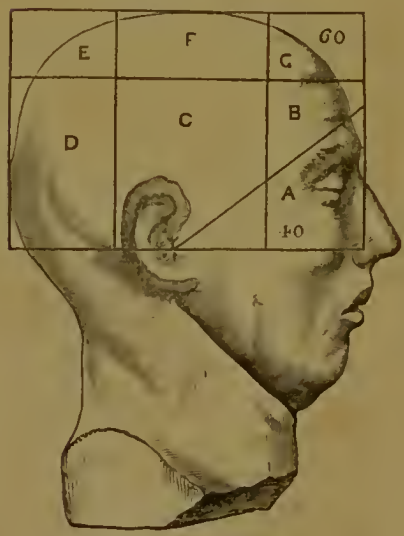


Diagram 35.—Gleeson Wilson.
Reduced to 1-5th.

Gleeson Wilson, executed at Kirkdale for the murder of the wife, children, and servant of Captain Heinrichson, Liverpool. This is a most dangerous type of the criminal class, and should not be allowed at large.

Jackson, executed at Chester for the murder of two of his own children. The basilar phreno-metrical angle 38 degrees. The base line from the ear to the low part of the nose is similar to all the other murderers. The coronal region wedge-shaped, and conscientiousness very small.

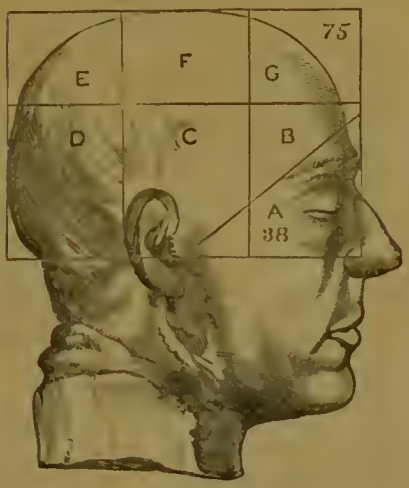


Diagram 36.—Jackson.
Reduced to 1-5th.

A. Waddington, executed at York for the murder of his own child at Sheffield. The head of this criminal is like that of Dove—a vicious, partial idiot. The basilar phreno-metrical angle 40 degrees.

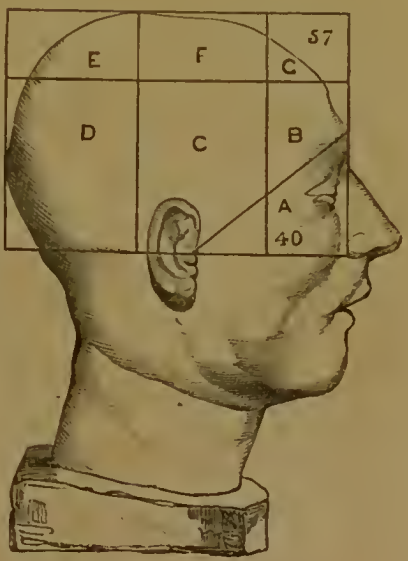


Diagram 37.—Waddington.
Reduced to 1-5th.

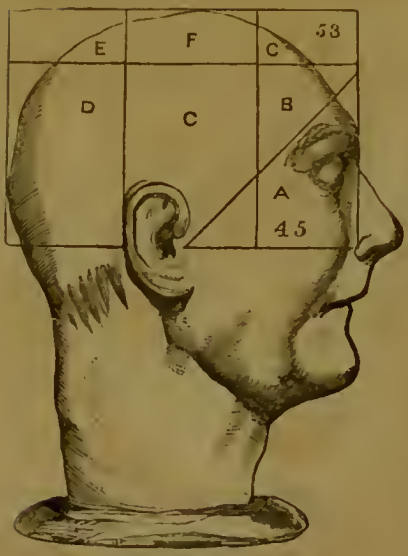


Diagram 38.—Greenacre.
Reduced to 1-5th.

The basilar phreno-metrical angle 45 degrees;—this is the greatest angle we have met with. The base of the brain very large, and the region of the moral sentiments very small; indeed, so much so, that it is evident that he was a moral idiot.

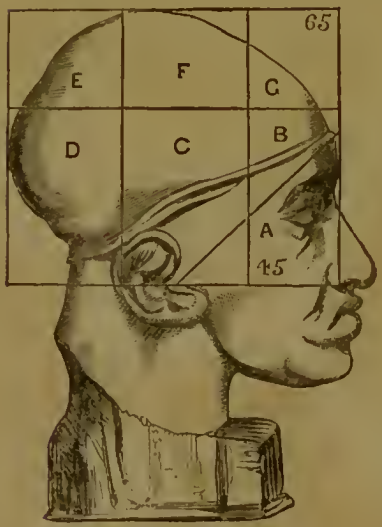


Diagram 36.—Mrs Gottfried.
Reduced to 1-5th.

This woman, though in easy circumstances, murdered, in a series of years, her parents, her children, two husbands, and six other persons. The basilar phreno-metrical angle 45 degrees, which indicates the destructive propensity, like that of Greenacre, at the highest degree that we meet with.

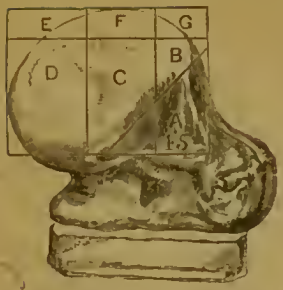


Diagram 40.—Reduced to 1-5th.

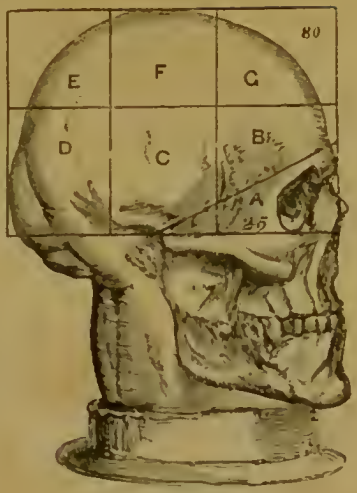


Diagram 41.—Reduced 1-5th.

The skull of the black monkey or chimpanzee, reduced to 1-5th the natural size. The contrast between the configuration of this skull and that of Dr Spurzheim, and the difference of the geometrical quantities in position in the various sections, are very striking. The basilar phreno-metrical angle is 45 degrees in the chimpanzee and 25 degrees in Spurzheim.

The basilar phrenometrical angle 40 degrees; the base of the brain very deep and wide, and the region of the moral sentiments small.

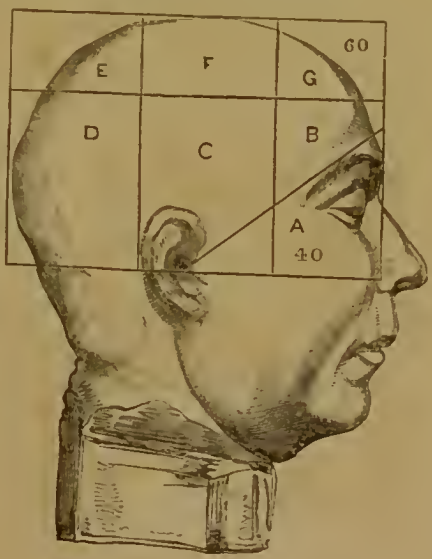
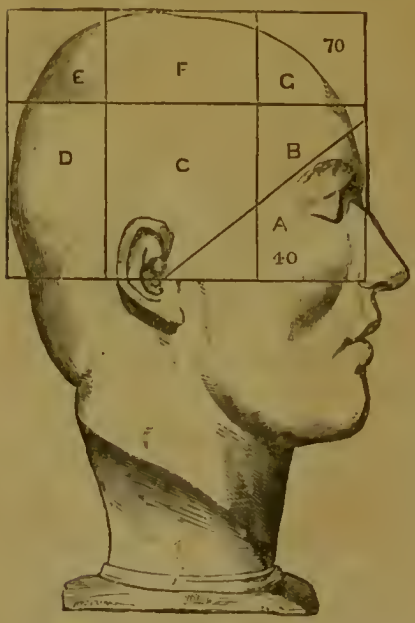
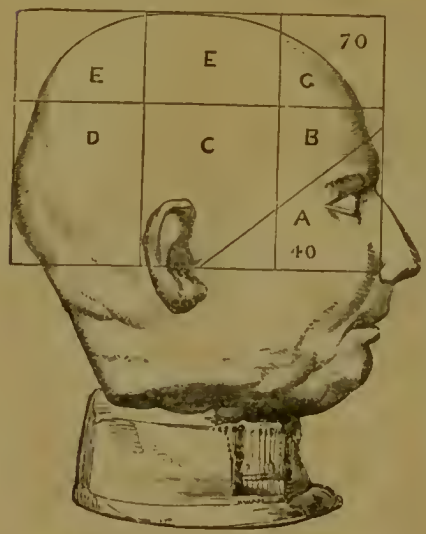


Diagram 42.—Rush. Reduced to 1-5th.



Courvoisier, the murderer of Lord William Russell. The basilar phreno-metrical angle 40 degrees; the base of the brain very deep and wide; and the region of the moral sentiments very small, being conical. This is a most dangerous criminal type, and it is high time that society should have the means of protecting itself against the atrocities of this class of individuals.

Diagram 43.—Courvoisier. Reduced to 1-5th.



Fieschi, who fired the infernal machine at Louis Philippe. The basilar phreno-metrical angle 40 degrees. This is the true type of the murderer and conspirator; and I am sorry to say that I have met with too many of this class, who talk largely of liberty, political rights, and patriotism; but I often found that their notions of moral and political rights had a very dangerous range of action.

Diagram 44.—Fieschi. Reduced to 1-5th.

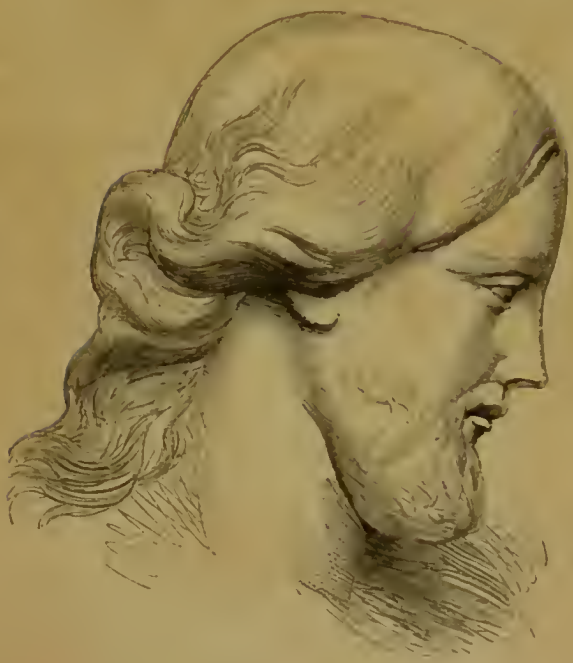


Diagram 45.—An Illustration of the ideal Head of Christ

The above illustration is from a photograph taken from a bust, representing the head of Christ. There may be persons who would deem it a want of due reverence in placing this representation in connexion with those of the most degraded criminals. But a moment's reflection will convince them that no such irreverence could be intended. It is introduced in this work for the purpose of illustrating a great fact : to demonstrate, that in proportion as the head goes higher and higher in the development of the mental and moral regions, the natural capability for mental and moral manifestations increases in the same ratio, *all other conditions being equal.* The artist who modelled this representation of the head of Christ,

no doubt took nature for his guide, copying from the heads of persons who were in the habit of manifesting the most exalted of the Christian virtues. It will be observed that this illustration approaches the type of the model head; and it is not less remarkable that I have invariably found that the heads of those persons who practise the most exalted of the Christian virtues, and are a law unto themselves, approach this type.

Diagram 46.—Cardinal Wiseman.

This is said to be an excellent profile. It shews a large development of the perceptive organs, which impart a ready talent for dealing with things and events; but owing to the reflective powers being so much less in relative size to the perceptives, such heads take a contracted view of the relation and bearing of facts and events, and their development in ulterior modes of operation, and they are apt to build theories with

regard to the social and political state of the world upon coincidents and metaphysical fictions, totally disregarding the fact, that the social and political conditions of every state of society throughout the world are governed by natural laws, as immutable in their operations as the laws which govern every department of the globe on which we live. Hence, they become sophists and special pleaders for states of things that have been—but are no longer necessary to the wants of humanity.

This description of the Cardinal was published in 1857, in the first edition; and his late begging letter to raise money to force the temporal government of the Pope upon the people of Italy, is a remarkable corroboration of its correctness. The contrast of this head with that of Christ may be studied with profit by the deluded admirers of such men.

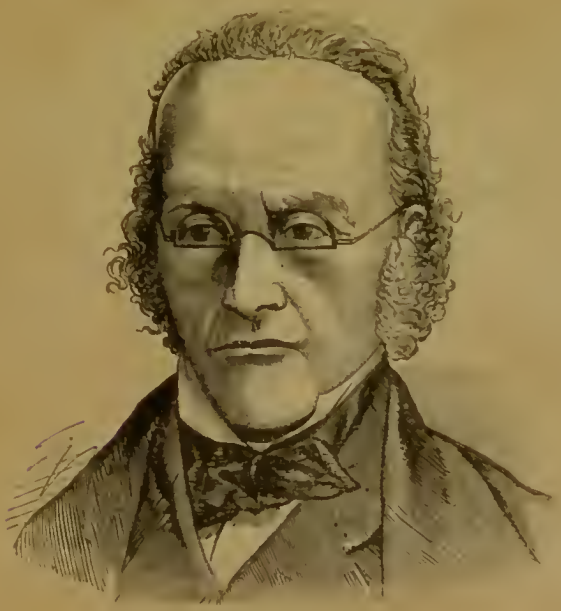


Diagram 47.—Sir John Bowring.

From a photograph taken in 1854 by Mr R. Thomas, Pall Mall, London. This head stands in bold contrast to the

criminal types, it being of the highest class of the mental and moral type, similar to that of the Rev. Thomas Binney, shewing great quantity in the positions of the mental and moral regions.

Diagram 48.—Rev. Thomas Binney.

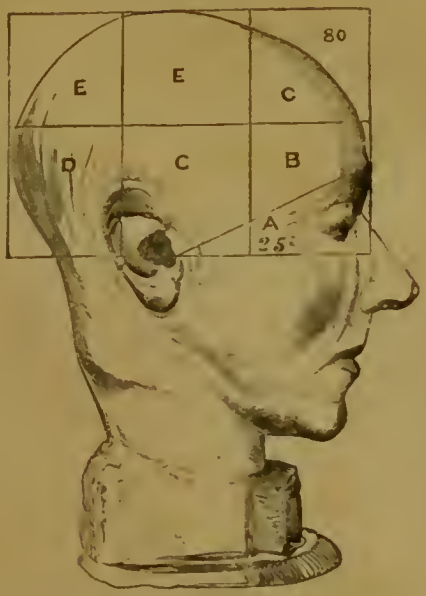


Diagram 49.—Mr Robert Owen, the Socialist.
Reduced to 1-5th.

This is a good contrast with the murderers. The basilar phreno-metrical angle 25 degrees; the middle lobe, c, small, and the head in this region very narrow: in fact, I do not remember to have met with a head in which the low, selfish propensities were so small as in that of Mr Owen; and his conduct through life has been in strict accordance with his phrenological development.

In proportion as the head of an individual differs from the geometrical quantities in position of the perfect type, his power of manifesting mind will be abridged in exactly the same degree: in the same way as the mind is obstructed in seeing and hearing, in the exact ratio that the instruments of vision and hearing verge from the exact geometrical quantities and dynamic force required by the mind for its perfect sight and hearing; so, an individual is mentally and morally blind in the exact ratio that the brain verges from the fixed geometrical quantities that constitute a perfect human brain.

The configuration of the heads of all criminals diverges in a greater or less ratio from the fixed geometrical quantities that each section of the brain should possess.* The relative degrees between the sections of the brain that constitute the region of the moral sentiments, and those of the propensities, are strikingly marked in criminals; and we find that the relative size of the propensities preponderates in the exact geometrical ratio, and bears a relation to a particular class of crime (all other conditions being equal) with as great exactness as certain mental talents bear a relation to arithmetic, music, painting, poetry, science, and philosophy. In fact, morals as well as crimes of every class are governed by dynamical laws, as fixed and immutable as those which govern optics and acoustics.

When regularity in the occurrence of changes points to a law in matters of a physical character, such events are said to be in obedience to a law of nature, or commonly a natural law. The apple falls to the ground because it is a natural law that all things shall be attracted towards the earth's centre. Gravitation, chemical affinity, and combustion, are the operations of natural laws. The science of natural laws is practically acted upon by all Insurance Companies.† It is an established fact, that out of ten thousand of the age of 52, one hundred and fifty-two will die within a year from the date of observation. Out of one hundred thousand persons born at any particular time a certain number will die in each year, that is, the total will be reduced in an increasing but regular proportion till the last expires. One half will only live to 45 years. Sixty thousand nine hundred and forty-one will live to the age of 29, and out of the survivors exactly one hundred will die in the following year. Thirty thousand nine hundred and ninety-six will live to the age of 60, and one thousand one hundred and twenty-two will die in their sixtieth year. These proportions recur constantly. With reference to the whole population of London, about the same number die of consumption in that city every year; and in every other vital contingency are found the same marks of regularity. The danger of fire, of railway accidents, of paralysis, of insanity, of suicide, of robbery, are all seen to be definite in quantity, when the contingencies of life and the accession of death in masses of people are regulated by a natural law: or, in other words,

* See Diagram 17.
† "The Life-Agent's Vade Mecum." By J. Baxter Langley.

that death, however uncertain with regard to an individual, is perfectly regular in its operation upon a large number. Hence, we speak of the natural laws of mortality, of morality, and of crime.

"If morality and crime be obedient to natural laws, it is our duty to regard those laws as revealed through nature direct from God for our guidance and welfare. We guard against the effects of gravitation and suffocation in the construction of our houses. We protect ourselves and children against small-pox by vaccination. In like manner we guard our towns against fever by more effective drainage, sewerage, &c., and we likewise protect our high buildings against the natural effects of electricity passing through them to the earth. In each of these cases, science has enabled us to read a natural law, and to provide against the effects of disobedience to its teaching."—COMBE.

The knowledge of natural laws is only to be gained by observations, frequently repeated. The falling apple, which suggested to Newton the natural law of gravitation, was not the only apple which had been seen to fall; on the contrary, it was only a single instance of what had been repeatedly observed and recorded. The philosopher passed from the consideration of a particular fact, to the contemplation of all similar occurrences, and thus deduced the general law. The law was coeval with creation, but its discovery resulted from observation of its constant effects. In the same manner, the law of mortality was discovered by persevering observation of its operations on large numbers of persons; by which the average duration of life from any particular age was ascertained.

Comte has truly said, that if we look upon the present state of mental and moral philosophy, we recognise that metaphysical infancy through which all the established sciences have had to pass. The present condition of mental and moral science, as taught in our universities, revives before our eyes the analogy of what astrology was to astronomy, alchemy to chemistry, and the search of the universal panacea to medical science. To study human nature metaphysically, is to allow a preponderance of imagination over observation; and in regard to the doctrine in the exclusive investigation of absolute ideas, the result of both of which is an inevitable tendency to exercise an arbitrary and indefinite action over phenomena,

which are not regarded as subject to invariable natural laws. Ideal speculations on mental and moral philosophy can only lead to ideal modes of treatment, which will be absolute in conception, and arbitrary in application; and these are, unquestionably, the prevailing characteristics of moral speculations at present on education and criminal legislation. If we reverse this state of things, we shall have precisely the spirit which must actuate us in laying the foundation of mental and moral science and direct its continuous development. The scientific spirit is radically distinguished from the metaphysical, by the steady subordination of the imagination to observation; and though mental and moral science, in their scientific aspect, offer the richest and widest field to the imagination, yet it restricts us to discovering the co-ordination of observed facts and the means of effecting new researches. This habit of subjecting scientific speculations to ascertained facts, it is above all things necessary to introduce into mental and moral researches. The observations hitherto made by metaphysicians in mental and moral philosophy have been so vague and ill-defined as to afford no adequate foundation for scientific reasoning, and they are usually modified at the pleasure of an imagination stimulated by the most fluctuating passions. From their complexity and their closer connexion with human passions, mental and moral speculations must remain longer than any other in the deplorable philosophical condition in which they are still involved, while simpler and less stimulating sciences have successively obtained emancipation; but we must remember that all other kinds of scientific conceptions have gone through the same stage of difficulty and delay, exactly in proportion to their complexity and special nature. Indeed, it is only in our own day that the more complex have issued from that condition at all, as we see to be the case with the intellectual and moral phenomena of individual life, which are still studied in a most anti-scientific way. We must not then consider that uncertainty and vagueness in observation are proper to moral and mental subjects. It is only that the imperfection, which has had its day throughout the whole range of speculation, is here more intense and protracted; and the same theory which shews how this must be the case, gives us all full assurance of a philosophical regeneration in mental and moral science, analogous to that which has taken place in the rest of the sciences, though by

means of severer intellectual difficulty, and an embarrassment which may arise from collision with the predominant passions of men—a liability which cannot but stimulate the endeavour of real thinkers. If we contemplate the spirit of scientific philosophy, we distinguish it from the metaphysical, by its tendency to render relative the ideas which were at first absolute. This passage from the absolute to the relative is one of the most important philosophical results of each of the intellectual revolutions, which has carried on any kind of speculation from the theological or metaphysical to the scientific state. In a scientific view this contrast between the relative and the absolute may be regarded as the most decisive manifestation of the antipathy between modern philosophy and the ancient. All investigation into the nature of being, and its first and final cause, must always be absolute; whereas the study of the law of phenomena must be relative, since it supposes a continuous progress of speculation subject to the gradual improvement of observation, without the precise reality being ever fully disclosed, so that the relative character of scientific conceptions is inseparable from the true idea of natural laws, just as the chimerical inclination for absolute knowledge accompanies every metaphysical fiction. When philosophers have desired to emancipate themselves from this absolutism, without having risen to the conception that intellectual operation and moral actions are governed by natural laws, they justly incurred the reproach of representing moral and mental science as uncertain and even arbitrary, and deprived it of whatever character of consistency it had without substituting any other. Hence, they cast a sort of discredit upon all philosophical enterprise in the direction of mental and moral science, which, losing its absolutism, seemed to lose its stability and therefore its morality. Moral and mental science, however, will put to flight all these chimerical fears; for all experience shews that in other departments of natural philosophy, scientific ideas have not become arbitrary by becoming relative, but have, on the contrary, acquired a new consistence and stability by being implicated in a system of relations, which is ever extending and strengthening. There is, therefore, no fear of falling into a dangerous scepticism, of destroying the absolute spirit, if it is done in the natural course of passing towards the scientific state. Here, as elsewhere, it is characteristic of the scientific philosophy to destroy no more

of intellectual co-ordination, without substituting one more effectual and more extended.

It is evident that this transition, from the absolute to the relative, offers the only existing means of attaining true scientific conceptions which may gradually secure unanimous and permanent assent, and lead to sound practical results in the mental, moral, and physical elevation of the human race.

To shew how confusion results from the imperfection of mental and moral science, as the most complex of all, we must look at the existing spirit in relation to its general application to national education and criminal legislation, and not for the moment in relation to the science itself. In this view we see that the existing political spirit is marked by its disposition to exercise an illimitable action over the corresponding phenomena, as it was supposed possible to do in other departments of philosophy. Men were long in learning man's power of modifying phenomena, and in the infancy of each science they believed themselves able to exert an unbounded influence over the phenomena which it exhibited. As this happened precisely at the period when they had the least power over phenomena, from ignorance of their laws, they rested their confidence on expectations of supernatural agents, or mysterious forces supposed to be inherent in all they saw. The delusion was protracted, and the growth of true science hindered in proportion, by the increasing complexity of any particular science, as each order of phenomena exhibited less generality than the last, and obscured the perception as to what the modifying power of man really is. Mental and moral phenomena are, of course, from their extreme complexity, the last to be freed from this pretension; but it is therefore only the more necessary to remember that this pretension existed with regard to all the rest in the earliest stages, and to anticipate therefore that mental and moral science will in its turn be emancipated from the delusion. Amidst the dawning of a sounder philosophy we see statesmen and politicians still supposing that moral and mental phenomena *can be modified at will*, the human race having in their view no spontaneous impulsion, but being always ready to yield to any influence of the legislator, spiritual or temporal, provided he is invested with a sufficient authority. It is easy to see that true political science would be unacceptable, because it must impose limits on political action, by dissipating for ever the pretensions of

governing at will this class of mental and moral phenomena, and withdrawing their human or superhuman caprice. In close connexion with the tendency to absolute conceptions, we must recognise in this delusion the chief intellectual cause of the social disturbance which now exists, for the human race finds itself delivered over without logical protection to the ill-regulated experimentation of the various political schools in Europe and America, each one of which strives to set up for all future time its own immutable type of government. We daily see what are the chaotic results of such strifes both in Europe and America: and we shall find that there is no chance of order and agreement, but in subjecting social phenomena, like all others, to invariable laws of nature, which shall as a whole prescribe for each period, with entire certainty, the limits and character of political action; in other words, introducing into the study of social phenomena the same scientific spirit which has regenerated other branches of human speculation. Such a procedure is the true scientific basis of human dignity, as the chief tendencies of man's nature thus acquires a solemn character of authority which must be always respected by rational legislation, whereas the existing belief in the indefinite power of political combinations, which seems at first to exalt the importance of man, in attributing to him a sort of social automatonism passively directed by the supremacy of either a supernatural or human ruler.

Enough has been said to shew that the great difficulty in the way of the advance of mental and moral science is the prevailing intellectual habits, which render it difficult to seize conceptions in any other aspect but the theological and metaphysical; therefore mental and moral phenomena, and their logical relations, are obscured by the prepossessions of the general mind.

ORDER I. Genus 1.—FEELINGS, OR AFFECTIVE PROPENSITIES.

The organs of the brain are classified into two orders—the feelings and the intellect: these are again divided into two genera—the feelings, into propensities and sentiments; and the intellect, into the perceptive and the reflective faculties.

This class of organs may be described as those feelings

which give rise to emotions or affections which neither know nor reason, being mere blind impulses, and unless governed by intellect are apt to run into gross abuses.

Thus Acquisitiveness, without mental and moral guidance, would lead to the most unprincipled avariciousness; Destructiveness, to wanton violence; Veneration, to the worship of idols; Self-esteem, to inordinate pride; and Love of Approbation, to ridiculous vanity.

1. AMATIVENESS.

This organ is the cerebellum or little brain. To learn the situation of Amativeness, feel on the middle line towards the base of the skull at the back part of the head, and you will find a small bony projection named the occipital process. Below that point, and between the mastoid process, the organ is situated. The size of the organ is indicated by the extension of the occipital swellings backward from the mastoid process, and downward from the occipital spinal process. When it is large, the neck at these parts between the ears is thick, and gives great peripheral or round expansion to the nape of the neck, from the mastoid process backward.

The cerebellum is very small in infants, not only absolutely but relatively forming from one-thirteenth to one-twentieth of the weight to the rest of the brain, whereas in adult age it constitutes from one-eighth to one-sixth. In infants, the parts of the neck corresponding to the cerebellum appear attached to the middle of the base of the skull: towards puberty it begins to expand behind. It increases rapidly on the approach of manhood, and at this period dull pains are often experienced in the seat of the organ. In old age it diminishes like the rest of the brain, but in a greater ratio.

The function or use of this organ is to manifest the sexual feeling. There is no phrenological organ of more importance, or which has so powerful an influence upon the human character and human happiness, or the bearings and relations of which are more extensive. In males, it becomes nearly double in size between the age of ten and twenty: the feelings and emotions during this time undergoing a corresponding change.

The gentler sex, which before were viewed without partiality, become now extremely interesting, and an indescribable charm seems to be thrown around them. Their voices are

enchanting, their forms appear exquisitely lovely, and their favouring smiles bewitching beyond all power of expression. Conscious of the nature of the feeling that thus inspires them, both sexes discover that their greatest bliss is in each other's society.

Young lads are generally indifferent about female society, and young girls about that of men. Women with small Amativeness and large Adhesiveness prefer the society of their own sex to that of men. To the latter their manners seem passionless and frigid, and even when gifted with beauty, they are felt by the opposite sex to be far less interesting, than a woman to whom nature has granted fewer charms of person, but a higher development of this organ.

The effects which follow when this organ is small may be observed in many bachelors. They are generally very particular in their choice, not looking with the partial eye of true lovers. They go about their love affairs as coolly and deliberately as they would about a pecuniary arrangement, and consider matrimony rather as an opportunity of advancing their interests or gratifying ambition, than as the means of enjoying domestic happiness. They are often excessively prudent, formal, and ceremonious, and have that singular talent of perceiving that a great many things are indecorous and shocking, which others look upon with innocent indifference. They are well characterised by Burns in a single line, "Their greatest merit is a want of passion."

A large development of this organ explains the mysterious fascination which some persons possess, who are not endowed with more than a medium share of other agreeable qualities.

It explains why we often see marriages of the most opposite character. The amiable, virtuous, and talented united to the morose, unprincipled, and ignorant, without any other cause being alleged than pure love. If warned by their friends that they are rushing to their ruin, they cling desperately to the fatal hope, that by the fabled omnipotence of love they shall by some means, they know not how, escape the threatened danger, and sail happily down the stream of life. Still many, in spite of their better judgment and the remonstrance of friends, run the hazard of the die, and they only repent of their rashness, when poverty and disgrace, and perhaps desertion, extinguish the last faint embers of their expiring hopes.

The abuse of this organ is fraught with innumerable evils,

which are manifested in a variety of ways, to the great detriment of the moral health of society. The function of this organ is thought by many unapproachable. But to the pure all things are pure, and we cannot conceive there is a function in human nature, which does not present an aspect in which it may be made to manifest the wisdom and goodness of the Creator.

Some think it best that young people should be kept in entire ignorance of the function of this organ. This is an opinion based upon a false conception of human nature, and we can by no means subscribe to it. It is the largest of all the organs, and being endowed with natural activity, it fills the mind spontaneously with emotions and suggestions, the manifestations of which may be directed and controlled, but which cannot be prevented from arising, even though you shut youth entirely from the world. The question is not, therefore, whether the feeling shall arise or not—over that we have no control—but whether it shall be placed under the guidance of an enlightened understanding, or be withdrawn from the eye of reason, or allowed to rest in all the fierceness of a blind animal instinct. The former course appears the only one consistent with reason and morality, and the one which should be invariably adopted.

This organ is excessively large in Palmer and Rush, and they were both notorious for their indulgence in gross sensuality. See Diagrams 18 and 42.

2. PHILOPROGENITIVENESS.

For the locality of this organ, let the reader feel along the middle line at the back part of the head towards the base of the skull, and he will find a small bony projection; below this point lies the organ of Amativeness, immediately above it and on each side of the middle line lies this organ. When large it gives to this part of the head a drooping appearance, and projects backward from the ear. In fact, the size of this, as well as all the organs in the posterior region, can only be determined by the width of the back part of the head in this region, and the projection backward from the ear. We frequently meet with persons in whom this backward projection is comparatively small, yet they have been told that Philoprogenitiveness and other organs in this region were large, simply

because prominences were marked in the location of this and other organs. The absurd practice of groping for hills and hollows, or what is commonly termed "searching for bumps," has been a great drawback to Phrenology, having caused much ridicule to be cast upon it, when the ridicule ought to have been fixed on the ignorant pretender. Now the fact of the case is, that unless you find width and backward projection from the ear in that degree which constitutes the geometrical quantity that this region ought to possess, such prominences in the location of this and other organs do not indicate that the organs are large; because in the degree that the geometrical quantity in position is wanting, in the same ratio will the organs be reduced in size and power. Hence, quantity in position must never be overlooked in estimating the size of an organ, whether in this or any other section of the brain.

By a little careful attention on this important point, much disappointment and annoyance to yourself and others may be prevented.

The function of this organ bestows the love of offspring and children in general. It is largest in the female; and this law holds good in the lower animals as well as in our own race.

Boys, as a rule, exhibit little of it; the case is different with girls, who shew its activity in their fondness for dolls, and in their desire to carry children in their arms even when they can scarcely stand under their weight.

When this organ is small, there will be great indifference to children. A mother so constituted finds the rearing of her children a toil rather than a pleasure, and unless her Conscientiousness and Prudence be great she will be apt to neglect them. A woman little endowed with this organ will not make a good nurse for children. Women who commit infanticide have generally a small development. I have seen nine cases of females who had committed infanticide, and seven of them were small in this organ; the other two were not so, but they murdered their children in fits of delirium.

Dr Spurzheim examined thirty-seven child-murderers, and in thirty of them the organ was very small. "In women," says he, "as well as in the females of animals, this propensity has different degrees of energy. Certain cows do not suffer their calves to suck; some pigs, cats, rabbits, &c., kill their young, while other females of the same kind of animals cry

for several days, and refuse to eat when they are bereft of their offspring. It is a lamentable truth that this difference of motherly love exists also in mankind. All women do not desire to become mothers; some consider their pregnancy as the greatest misfortune; others seek various pretexts in order to remove their children out of the house. There are others, who being freed from shame, reproach, and misery, and many inconveniences by the loss of their illegitimate children, yet shed tears for a long time after at the remembrance of them. Others, on the contrary, see their illegitimate offspring buried without a pang. Thus it is beyond doubt that natural love of offspring is very weak in some women."

The natural language of philoprogenitiveness, when predominently active, is to throw the head back. Mothers who have this organ large and active, may be observed to kiss and fondle their infants, press them to their bosom, and then throw their heads back. Painters have noticed this natural expression, for the great Italian painters in their representations of the Murder of the Innocents, place the bereft mothers with their heads thrown back, and extreme agony depicted on their countenances. This organ is frequently abused, and people pamper and spoil children instead of training them rationally; hence their children become pert, noisy, unmannerly, and self-willed. Sir Walter Scott remarks, that among children there is a sort of freemasonry whereby they detect almost instantly those who pay attention to them. Some of the sternest minds and greatest heroes have been distinguished for the strength of this feeling. Agesilaus, the warlike monarch of Sparta, used to ride on a stick to please his children. On one occasion King Henry IV., of France, was caught galloping on all-fours, one of his children on his back and the other flogging him with a whip.

We daily see domestics very fond of children, and others who cannot abide them. We see some who abhor even their good-humoured prattle, others who shew towards them the utmost forbearance, and soothe their fitfulness with admirable patience and gentleness.

We frequently meet with men who have an ardent love of children, and in whom this organ is very large; and the other domestic feelings being only moderate in size, they console themselves for the loss of a beloved spouse with a resignation which appears philosophical, while the death of a child

plunges them into long-continued and inconsolable grief. The barrenness of their wives distresses them exceedingly, and often leads them to treat with coldness women who are otherwise unexceptionable.

Philoprogenitiveness is one of the most amiable traits in the human character, and when large it gives gentleness to the manners, which renders the person very agreeable to young people. The schoolmaster is never popular with children if this is small, but when large he manifests a fatherly interest in the welfare of his pupils. Indeed, school-teachers, and all persons in situations where authority over juniors is to be exercised in a discretionary manner, need the influence of this organ to prevent them from acting with too much harshness and severity.

We frequently meet with persons who have no children of their own, but who have adopted orphan children, and in all we have found this organ large.

The love of progeny exists to a greater or less extent throughout the animal kingdom, and we can hardly turn our attention to any part of it, without being greeted with its manifestations. Fishes, insects, and the amphibious animals seek to deposit their eggs in a place of safety, whence the young may obtain ready egress and be able to find food. The savage crocodile cautiously steals forth and deposits her eggs in the sloping sand-bank, where the sun's rays can fall with full power, carefully trying to cover them in such a way as to prevent their discovery. Certain spiders carry their eggs in a little sack on their back, which they never part with except on the most pressing emergency. The cricket forms winding passages to its nursery and keeps sentry around them. If an ant-hill be destroyed, with what earnestness the little inhabitants collect the eggs and deposit them in a place of safety! The wasps and bees may at other times be approached without exciting their anger, but in the season of their young they become dangerous. With what activity they nourish the infant bees, with what fondness they lick and caress them, with what courage they defend them! With what perseverance do the birds cover and hatch their eggs, with what assiduity do they feed and protect their young, what alarm they manifest when the brood is threatened! They cling to their little ones despite of hunger and cold, and are sometimes found dead, having in vain attempted to screen them from

inclement weather. When the fox, cat, or squirrel has the least suspicion that its habitation is discovered, it immediately removes its offspring to another asylum. However cautious the fox ordinarily may be, it becomes rash and dauntless when it has its whelps to succour. Beasts of prey become truly terrific when their young is in danger; and even the hind and the female roebuck forget that they are defenceless, and like furies rashly precipitate themselves on their enemy when their fawns are in danger.

Mankind love their young, and take charge of them with common accord, but yet the love of offspring is much more intense in the female than in the male, and this difference is manifested from the earliest infancy. The boy wants his whip, horse, drum, or sword; but observe the little girl, occupied with the doll—she decks it in fine clothes, prepares for it night linen, puts it into the cradle, rocks it, takes it up, threatens it, scolds it, and tells it stories. When she grows older she takes charge of younger brothers and sisters. Nothing possesses in her estimation greater charm than babies. When grown to maturity, and become herself a mother, with what sweet emotion and gushing tenderness does she caress her little ones! Well might Dr Gall say, "If I had a city, there should arise in its midst, as an emblem of domestic happiness, a mother nursing her infant."

3. INHABITIVENESS.

This organ is situated immediately above Philoprogenitiveness, and its size is estimated by the same rule as that of the latter organ—that is, by the distance backward from a line drawn upward from the mastoid process, and the width in the locality of the organ. The function of this propensity is to prompt its possessor to fix upon some particular spot for a residence. Amativeness and Philoprogenitiveness suggest the necessity of Inhabitiveness. Animals that have young and nourish them, must have a place for them to which they can regularly return from their ramblings in quest of food.

Nothing can afford stronger evidence of this propensity than the fact that migratory animals return thousands of miles to inhabit the same spot that they did the year before: in doing this they have no apparent motive but attachment to

the place. It cannot be to find food, for they often pass other locations which are superior in that respect to that of their own; nor can it be attachment to their former companions, for they go with them and return with them. They pause not in their journey any longer than is absolutely necessary for food and rest; and when they arrive at their former habitations they go not beyond. In many instances they not only return to the same country, or to the same bank or house, but even the same nest, repair it, reoccupy it, and defend it from intruders at the hazard of their lives.

This organ is found large in those persons who are fond of home, and cannot bear the idea of leaving their homes even under the most pressing necessity. I have met with many, particularly females, who had such an extreme aversion to leaving home, that even when on a visit to their friends, they became home-sick in a few days, and nothing but returning home would relieve them of the wretched state of mind under which they laboured. In my rambles in North America I have met with emigrants almost from every country in Europe labouring under the influence of home-sickness, and many of them manifested perfect horror at the idea that they should never again see the "home of their childhood," or their "native home." Some manifested feelings of the deepest agony, and would fall upon their knees, and in the most touching and fervent manner implore God to restore them once more to the home of their birth. On others it had the effect of producing a fixed gloom and sunken spirits, who would from time to time relieve their sadness with a deep, melancholy sigh. I have seen females weep most bitterly, and in the agony of their grief exclaim in the wildest manner that they never could have been in their senses when they left home. Inhabitiveness I found large in all such cases.

Southey beautifully expresses the feeling produced by this organ in the following lines :—

> "When I have gazed
> From some high eminence on goodly vales,
> And cots and villages embower'd below,
> The thought would rise that all to me was strange
> Amid the scenes so fair, nor one small spot
> Where my tired mind might rest, and call it home."

The "Lines on the Iron-bound Bucket" are a striking illustration of the function of this organ,—

"How dear to my heart are the scenes of my childhood,
When fond recollection recalls them to view,
The orchard, the meadow, the deep tangled wild wood,
And every loved spot which my infancy knew;
The wide-spreading pond, and the mill that stood by it,
The bridge and the rock where the cataract fell,
The cot of my father—the dairy-house nigh it,
And e'en the rude bucket that hung in the well.
That old oaken bucket,
That iron-bound bucket,
That moss-cover'd bucket that hung in the well."

Milton represents Adam as exclaiming—

"And must I leave thee, Paradise;
Thee, native soil!"

Byron says—

"There was something in my native ai
That buoy'd my spirits up."

And Coleridge exclaims—

"My native land,
Fill'd with the thought of thee, this heart was proud,
Yea, mine eyes swam tears."

The prophet of Israel forcibly expresses the same feeling: —"When I forget thee, O Jerusalem! may my tongue cleave to the roof of my mouth, and my right hand forget her cunning."

In those who are fond of a wandering or a vagabond life this organ will be found low. Some persons never can settle anywhere: others have an absurd liking for particular places, houses, or even particular rooms, or seats in a room. Cardinal Richelieu, when building his palace, it is said, destroyed the symmetry of the building, in order to preserve the room in which he was born.

4. CONCENTRATIVENESS.

This organ lies immediately above Inhabitiveness and below Self-esteem. Its size is estimated by the fulness in the region of the organ, and the distance backward from the vertical line drawn from the mastoid process. Sometimes, at the joining of the occipital bone with the parietal bones, a projecting ridge is found; but this must not mislead as to the siz of the faculty.

The function of this organ is the desire or power to concentrate the mind upon itself, and keep its efforts combined on one subject or object till examined in all its relations. Firmness produces fixity of purpose; Concentrativeness continuity to impressions, whether feelings or ideas. Persons who have a large endowment of this organ are not apt to be distracted from what they are engaged in by intrusion of extraneous ideas. But the organ in excess is apt to lead to a morbid dwelling on internal ideas and emotions. Many who have it small are remarkable for great volatility of manner, and extreme difficulty in directing their minds for a length of time to one subject: they are continually flying from topic to topic, and find it almost impossible to pursue a continued train of investigation. Scatter-brained, flighty people are all low in this organ. Good abilities may, however, exist with great deficiency of it; but in such cases they are deprived of much of their usefulness.

When I first visited the United States of America, I was particularly struck to find this organ so generally low in the heads of the people. But in a short time I observed that it was in accordance with their modes of action. I saw that a restless love for change and variety of pursuit was a marked feature, and that a general feeling prevailed for new and extensive fields of operation. Inhabitiveness I also found low, and I saw great unsteadiness among the people in regard to their habitations, many shewing strong aversion to the idea of being confined within a small, limited sphere.

The frequent change of habitation, or the too great extension of the field of operation, will, as a matter of course, produce unsteadiness and changeableness in all the habits and occupations of life, which are unfavourable to concentrated thought.

I have found both Inhabitiveness and Concentrativeness larger in the heads in England generally than in America. In Liverpool, however, I have found these organs smaller in a general way than in the heads of the inhabitants of the inland towns and cities; and I have observed a particular aversion in the latter to leave the place of their birth, or to change their habits or modes of life, clinging tenaciously to old customs and established methods of doing things, as if ruled by blind instinct.

The style of some authors is remarkable for concentration;

such is the case with Byron, Pope, and Campbell. In Scott, Coleridge, and Southey it is not so striking. In judging from the writings of such men as Tacitus, Thucydides, Reid, and Locke, we find all the characteristics of large Concentrativeness: Newton and Adam Smith manifested the faculty largely.

5. ADHESIVENESS. (Old No. 4.)

This organ is situated on each side of Concentrativeness; and it is that portion of the brain that produces attachment to individuals, and to form social compacts. Some have attempted to explain the existence of society by supposing that man early perceived the necessity of unity for the mutual assistance of each other. But a reference to the natural history of the lower animals proves, beyond doubt, that social compact depends upon a distinct propensity.

Dr Gall discovered this organ. He was requested to take the cast of the head of a lady, who was known by a great many persons to have been what was called the model of friendship. She had herself been subject to great vicissitudes of fortune. She had been rich, and then poor, and rich again; but amid all these changes she remained firmly attached to her friends. Dr Gall, on examining the cast which he had taken, found two projections at the back part of the head towards the sides.

The manifestations of this organ may be noticed in the conduct of those around us. It is generally much stronger in females than males; for women love with all their soul, and frequently act more from feeling than reflection. There is a pureness and self-devotedness in the affections of women, however unworthy the object may be, that often astonishes those who are differently organised, and who regard it as madness or infatuation.

It has been said that in women alone can friendship be found in all its fulness of perfection. Those who, to gratify their vanity in making conquests, or to satisfy a sensual passion, render themselves doubly guilty by playing foul with the loveliest trait in the female character, while glorying in their successful villany, should remember the wretchedness into which they plunge their victims, and leave them to mourn over ruined hopes and blighted names.

The manifestation of this feeling has been beautifully pointed out by Dr Gall. "Women," says he, "are generally more devoted to their friends than men, and display an indefatigable activity in serving them. Whoever has gained the affections of a woman, is sure to succeed in any enterprise wherein she assists him. Men draw back much sooner in such cases. Frequently in my life have I had occasion to admire in females the most generous zeal in behalf of their friends. Who is not astonished at the courage shewn by a woman, when her husband, whose conduct has perhaps a thousand times offended her, is threatened with imminent danger? Who does not know many instances of the most heroic devotedness on the part of her sex? A woman spares no effort to serve her friend. When it is a question of serving her brother, her husband, her father, she penetrates into prisons, she throws herself at the feet of her sovereign. Such are the women of our day, and such has history represented those of antiquity. Happy, I repeat, is he who has a woman for a friend."

This faculty does not constitute love in the legitimate sense of the word. Love is a compound of Amativeness, Adhesiveness, and the organ of Marriage—such is the love which the lover bears to his mistress and the husband to his wife. The attachment of a brother to his sister is from strong Adhesiveness. The large development of that organ is strikingly and beautifully illustrated in Ruth, when she exclaims :—"Intreat me not to leave thee, or to return from following after thee: for whither thou goest, I will go; and where thou lodgest, I will lodge: thy people shall be my people, and thy God my God. Where thou diest, will I die, and there will I be buried: the Lord do so to me, and more also, if aught but death part thee and me."

Although this feeling is generally more energetic in women, still we have plenty of instances of men manifesting devoted and ardent attachment towards their own sex. David, in lamenting the untimely death of his friend Jonathan, does it in the strongest language in which he could express himself: —"Thy love for me was great, passing that of woman." Damon and Pythias, whose attachment to each other defied even death itself. Robbers sometimes display such strong attachment to each other, that even the rack has failed to extort from them the names of their accomplices in crime.

Friendship, however, is greatly wanting in its lustre when the moral sentiments have not the predominance in the mind.

The most absurd and romantic attachments are frequently formed by young women to each other, and sometimes by young men, based upon an unnatural excitement of Adhesiveness, which frequently terminates so soon as the excitement ends. People under the strong influence of this organ are often incapable of perceiving anything like blemish in their friends, and employ the most extravagant terms of praise when speaking of them to others.

Those in whom this organ is large feel an innate tendency to embrace the object of their affection. It is manifested in boys in their attachment for rabbits and dogs. Moore, the poet, was extremely large in this organ, and his poetry breathes the very spirit of Adhesiveness, as the following lines shew:—

> "The heart, like a tendril, accustom'd to cling,
> Let it grow where it will cannot flourish alone;
> But will lean to the nearest and loveliest thing
> It can twine with itself, and make closely its own."

Again it glows:—

> "The heart that once truly loves never forgets,
> But as truly loves on to the close;
> As the sunflower turns to her god as he sets
> The same look that she turn'd when he rose."

The natural language of this organ is indicated by the tendency to turn the head in the direction of the organ towards the object to whom we are attached. Young girls may be seen coming from school with their arms thrown over each other's neck, and the sides of the head meeting just at the seat of the organ. We may frequently notice the incline of the head mutually in the same way in two lovers walking arm-in-arm. When the dog or cat is under the influence of this organ, and wants to shew its attachment, it will rub the seat of this organ against its master's leg. Persons in whom it is large, give the hand a hearty shake on meeting with a friend: those in whom it is small, hardly press the hand at all. Absent friends are ever present with those in whom this organ is large, they think of them with warm affection. When it is small, out of sight, out of mind.

6. MARRIAGE.

Dr Gall supposed that attachment, and attachment for life, were distinct faculties. Spurzheim thought them to be modifications of the same faculty. Dr Vimont, however, thinks that he has proved Gall's view to be the correct one, and considers the region which he ascribes to Philoprogenitiveness as being composed of two organs—love of young in the middle, and on each side attachment for life, or the organ of marriage.

For many years I have paid particular attention to this organ, and many remarkable cases have come under my own notice—both in England and America—of the excessive manifestations of this feeling, as well as great deficiency, and I have found the developments of the head in the region of this organ to correspond; there being great width and backward projection from the vertical line drawn from the mastoid process, in those cases which manifested the feeling in excess, and great narrowness and contractedness in those who shew a want of the function of this organ.

Some time ago a lady, with her sister and brother-in-law, called upon me: they were advised to do so by their family doctor. This lady had for a considerable time been labouring under lowness of spirits, and was inconsolable. No intimation was given me as to the cause of this state of mind. On examining her head, I found the region of this organ particularly large, and much hotter than any other part of the head. Philoprogenitiveness was only moderate. I remarked to her sister that the loss of children would cause little grief, while the loss of her husband would be liable to produce the most intense and inconsolable distress of mind. She said that such was the fact; that her sister had buried three children, and she manifested so little sorrow that many friends thought her conduct inhuman. But the loss of her husband had produced the very opposite effect, and she was then labouring under the most distressing feelings of melancholy. I have both before, and since this case, seen many similarly affected, and they were all large in the region of this organ. I have met with many remarkable cases of great deficiency. It is small in the head of Palmer, and he manifested a great want of the feeling. It appears to be purely a domestic feeling, and blends two

congenial souls into each other. The longer two persons live together with this organ large, the more they assimilate in looks, expressions, and gait. It constitutes the foundation of marriage, sustaining the superstructure until the objects are separated by death.

From the earliest time the institution of marriage has been a striking feature in the social state of society, and among all nations, whether shrouded in pagan darkness, or enjoying the pure and elevating influence of Christianity, or in that condition in which women are treated like slaves and beasts of burden, or where they are recognised and entitled to an equal rank with man, the innate feeling to marry has been found to be one of the strongest desires of the human race. The institution of matrimony had its origin in this organ, in the same way that the bond of union among men, and the rise of society, had their origin in Adhesiveness. The Scriptures declare in the outset, that in our creation the distinction of the sex was ordered as a contribution to our enjoyment, and therefrom should follow perpetual companionship. "And the Lord God said, It is not good that man should be alone, I will make an help meet for him." And after he had created woman and given her to Adam to be his wife, Adam acknowledged the precious gift with profound gratitude. He said of her, "This is now bone of my bone and flesh of my flesh." The sacred historian adds, "Therefore shall a man leave father and mother, and shall cleave unto his wife, and they shall be one flesh."

It is evident that marriage is essential to the happiness of mankind, and requires to be regulated by human laws. Some have, however, advocated that it should be left without any regulation. Those who have embraced the doctrine of abolishing all restrictions upon this institution, or at least the leaders in this theory, have not been men destitute of an acquaintance with the history of the subject; but such as in their imaginary philosophy have thought themselves able to improve upon the laws of nature. There have been those who were wise enough in their own eyes to mend those laws which He who moulded the human brain had given for its government; who have attempted to break down and totally demolish the sanctity of the marriage relation. But the institution of marriage bears the same relation to the domestic feelings of our nature that religion and morality do to the moral sentiments, and as we

are at present constituted, it would be as impossible to abolish matrimony and religion from the world, as for the blood to circulate through our system without the action of the heart.

I have found this organ generally small in the Mormonites, or "Latter-Day Saints." In some, however, I have found it highly developed; but they stated that, though Mormonites, they would not have more than one wife each. Nothing can be more obvious than the fact of the human invention of the Mormon's theory of marriage, because it is in decided opposition to the works of the Creator. God has implanted in our nature a faculty that bears a relation to the institution of marriage with as much directness as those which prompt the love of progeny and friendship. Hence, polygamy has its bases in metaphysical fiction, and leads to wild, sensual delusions, containing within themselves the elements of their own destruction.

When this organ is large, great disappointment is experienced when love is interrupted. Persons so endowed are perfectly satisfied with the society of the object of their affection, and can love truly no other, and they retain that love after its object is dead. They may, however, marry again, but it will be more from motives of policy than pure affection. Many become broken-hearted when disappointed, and seek death rather than life. They regard the object of their affection as the gem of life, and its loss as worse than death. When this organ is small there is little regard for conjugal union.

7. COMBATIVENESS. (Old No. 5.)

This organ is situated at the posterior inferior angle of the parietal bones. It will be more easily traced in an individual by observing the top of the ear, and passing the hand from behind the ear towards the organ of Adhesiveness. When large it gives great fulness to this region of the head, and elongation behind the ears. A vertical line drawn from the mastoid process will be found a good guide in forming an estimate of the size of this organ. If large there is great space occupied before we pass round the back part of the head, giving great squareness and breadth. When the organ is small the head will be narrow from side to side in the region behind

the vertical line from the mastoid process, and very little space backward.

Dr Gall discovered this organ by collecting together a number of the lower class of society, studying their characters and comparing the formation of their heads. He found such as were remarkable for courage large in the locality of this organ, and those noted for cowardice very small. In Vienna, combats with animals were frequently exhibited, and one man was so intrepid that he often presented himself alone in the arena, to sustain the attack of a bull or a wild boar; in him Gall found the organ very large.

It may be called the organ of courage, as it is by this organ we resist and overcome danger and opposition. The combative man loves to contend, and meets opposition fearlessly. The statues of the gladiators display a bulging out in the seat of this organ, proving that the ancients recognised great courage to exist in combination with a particular form of brain.

This organ differs from Destructiveness in being satisfied with victory, and does not crush a fallen foe. It only inspires with courage to

"Strike till the last armed foe expires."

The acts which follow Combativeness are called hostile, brave; while those of Destructiveness are cruel, malicious, revengeful. The object of Combativeness is conquest, but Destructiveness demands extermination. Combativeness inspires the feeling of opposition, which vents itself in disputes, and, combined with large intellect, produces literary and political controversies. It was large in Dr Gall, and he manifested great personal courage. In the skull of Robert Burns it is large, which accounts for his controversial tendency. Sir Walter Scott had this organ large, and hence the energy which he manifested in his descriptions of the fight and the shouts of victory. From the sympathy of authors with warriors, a successful butcher is too often elevated to the rank of a hero, and success in arms considered glorious, without reference to the merit of the quarrel.

Some persons have such a love for contention that they dispute everything; they say it is the love of truth which instigates them, but in reality it is the love of quarrelling. This organ becomes a great disturber of domestic peace, when not under the government of the moral sentiments, and the

hours which should be devoted to quiet enjoyment are embittered by strife and contention.

When Combativeness is small, the individual will find it impossible to contend with danger—he will lack even the courage to oppose manifest wrong, and allow himself to be trodden under foot. It is small in the Hindoo and Peruvian heads, and exceedingly large in the Carib; and the manners and habits of these nations are in perfect accordance with their respective developments.

When this organ is uncontrolled by the higher feelings, the individual is ever engaged in quarrels, from his ungovernable love of contention. It is not the momentary burst of passion which passes instantly away, but an habitual desire for contention; and he will contemplate coolly, and even draw from the opposing causes strength and power to resist.

In contemplating the different results produced from the activity of this organ, all must see the importance of directing it aright, and this may be easily done by beginning at the earliest age.

The exertions of philanthropists, such as Mrs Fry and Howard, depended greatly upon this organ. It required great courage for a female to attempt a reformation of Newgate: and the courage displayed by Howard in encountering and overcoming difficulties is remarkable. Its influence may be noticed at the bar and in the senate. Mr Joseph Hume was large in this quality, and his courage in maintaining what he thought right has been often proved. All who have stood forward in defence of any party in politics or religion, or any schemes for improvements, will be found large in Combativeness.

The natural language of this organ is to throw the head backward, and on one side, as seen in the attitude of boxers and gladiators. An individual in whom it is small, may be excited by rage to stand up to fight; but he will not keep his head up, he pokes it into the breast of his adversary. It gives a harsh thumping sound to the voice. Madame de Stael noticed this in Napoleon, and remarked, that when excited every word he uttered seemed to contain a shot. Boys who have it large stand up boldly when fighting, and look their adversary in the face.

The following lines contain a very correct illustration of the natural language of Combativeness: it occurs in

Virgil's description of the encounter between Dares and Entellus :—

> "Both on tiptoe stand, at full extent,
> Their arms aloft, their bodies inly bent,
> Their heads from aiming blows they bear afar,
> With clashing gauntlets then provoke the war."
>
> DRYDEN.

I have found this organ large in criminals who have shewn great courage in their career of crime. It was remarkably large in Rush ; and the boldness which he manifested in his defence is a striking illustration. The same was the case with Thurtell.

8. DESTRUCTIVENESS. (Old No. 6.)

This organ is situated immediately above the external opening of the ear, and extends a little backward and forward. Its size can only be correctly estimated by the width of the head over the ears, and the degree of the angle from the eye to the opening of the ear, explained at Diagram 13. The organ of Destructiveness rests on the base of the skull, and I frequently find it large in individuals whose heads are not above an average width over the ears. In such cases. I have found the basilar phreno-metrical angle ranging from 30 to 45 degrees. I have before remarked, that I have found that the average of this angle is about 25 degrees in both men and women.

The convolution of the brain which has been considered Destructiveness, is between Secretiveness and the convolution which I find to be at the base of the brain which is the destructive propensity. I almost meet daily with individuals whose basilar phreno-metrical angle is not more than 15 degrees, yet whose heads are wide over the ears, and they invariably have great horror at taking life in any shape, and could not bear to witness torture ; but I found them, generally, extremely sensitive with regard to their own life and health.

The destructive propensity Dr Gall early noticed ; but he drew no particular conclusion from it, till a gentleman sent him the skull of a parricide and another of a highwayman, who, not content with robbing, murdered his victims. The organ is found large in all carnivorous animals, and I find that they have the same form of brain in the region of this organ that I find in murderers. As the basilar phreno-metrical angle

in the human head advances from 15 degrees, I have observed that earnestness and energy of character have increased in a similar ratio. I have found by long experience, that an angle of 25 degrees is sufficient for all useful purposes of life. It appears that the legitimate use of this organ is to prompt us to kill for food, and impart energy of action; and that those individuals who commit murder have a development of the destructive propensity similar to what we find in the brain of carnivorous animals. I have not met with the single case of a murderer with the basilar phreno-metrical angle less than 35 degrees, and the average of them I have found 40 degrees, and the maximum 45 degrees. I have within the last twenty years examined the heads of thousands of all classes and grades of society, and I have not met with an instance of an individual with an angle of 25 degrees, who had shewn any disposition for taking life in the way of murder. I know persons, whose angle is not more than 25 degrees, and who manifest great harshness and severity of speech and writing—and others, who become highly excited in their manner, and use very violent language—yet they have the strongest aversion to taking life and to cruelty.

In the skull of King Robert Bruce the basilar phreno-metrical angle is 40 degrees; in the skull of Burns the poet it is 25 degrees.

I have met with distinguished warriors and sportsmen in whom the angle was not more than 25 degrees, and they had great aversion to cruelty. The angle in the cast taken from the head of Napoleon after death is 30 degrees.

The natural language of Destructiveness is manifested by a wriggling motion of the head, like that of a dog when in the act of worrying; the eye is generally sharp and sparkling, the voice loud and cutting, the movements quick and energetic; the foot is stamped, the body is drawn up towards the head, and the face wears a scowling expression.

9. PRESERVATIVENESS.

This organ is situated between Secretiveness and Destructiveness. It appears that the design of the Creator in bestowing this organ was to prompt us to preserve our bodies from injury and destruction. The first manifestation of this organ displays itself in the cries of the new-born infant. No propensity is

more universally manifested than this and Alimentativeness, and none so essential to the preservation of our existence.

My attention was first called to this organ in the year 1835. I was then devoting much time to the special study of the heads, and the peculiar characteristics of children from birth upwards. I was frequently struck with the remarkable width over the ears of the majority of infants which came under my notice. Phrenologists taught that this width was a sign of large Destructiveness; but I could not see why the destructive propensity should be so large in children, as it was not required at so early an age, at a time when their weak and helpless condition rendered it impossible for them to destroy anything. I observed, however, that those children who were the most highly developed, invariably shewed the greatest excitement when suffering from pain or hunger. I also met with many boys and girls who were particularly wide over the ears. On naming the fact to their parents that, according to Phrenology, Destructiveness was large in their children, some would laugh, and remark, "That is impossible, for that child has the most horrible aversion for anything like destruction." On one occasion, in particular, on examining the head of a girl about thirteen years old, I found the width over the ears very great, and I remarked to her mother that Destructiveness was very large in the head of her daughter; she smiled, and said, "That cannot be the case, for that child has the most intense dread of life being taken; indeed, so much so, that if she saw any one kill a fly, it would produce the most painful manifestation of feeling; and she has shewn from childhood an extreme aversion to those children who were in the habit of torturing and taking the life of insects." But she also stated that she had manifested a more fidgety, sensitive, crying disposition than any of her brothers and sisters; "and there is a fretful, petty peevishness of temper for which I never could account, and she has manifested this peculiar temper from birth, and she has been more troublesome, and required more attention, than any of my other children." Some time afterwards I called upon a friend, and found him and his wife in great distress of mind, doing all in their power to soothe the temper of their child, who was screaming and kicking most violently. I asked how often it manifested such violent temper, and was informed that it only did so when it wanted food. The mother stated that she did not know how to act for the

best, as the doctor had ordered her to give it little food. I then remarked, "You may be carrying the doctor's orders too far, and injuring your child: it is evident that it wants food, and there can be no harm in supplying its little wants, for nature is a more sure guide in such cases than the opinion of any man." Food was at once given to the child, and it was pleasant to see its anger and violence gradually turn into peace and quiet, and the infant smile grow in its features, till it became the joyous crowing laugh. In this case the head was particularly wide over, and in front of, the ears. This led to further observation, and I met with facts, almost daily, of persons who were extremely wide over the ears who had the strongest aversion to anything of a destructive character. But I noticed that they invariably manifested great sensibility, and appeared most anxious about their lives and health. These facts being so frequent greatly perplexed me, and I felt sure that there was more in this region of the brain than Phrenologists had made known, as I met with individuals whose heads were by no means wide over the ears, yet they were notorious for being vicious and destructive, and appeared to delight in acts of the most wanton cruelty. In this dilemma I remained till I had determined the various angles from the eyebrow to the opening of the ear of different individuals, and the degree in which they had manifested the destructive propensity.

The organ of Alimentativeness joins the convolution of the organ of Preservativeness, and the two organs run into each other. When the stomach is empty, Alimentativeness is roused, and the sensation of hunger is felt. When food is taken, this sensation is removed. If too much food is taken, the structure of the stomach is affected, which rouses the organ of Preservativeness, or the instinctive propensity to protect and preserve the bodily constitution from disease, injury, and destruction. This is the instinct that calls attention to the wants and suffering of the infant at birth, as well as the young of the lower animals; and I find this propensity as strongly marked in the manifestations of the young of the herbivorous and graminivorous tribes as I do in those of the carnivorous race.

Facts come under my notice almost daily of persons of all ages with this organ large, and Destructiveness small; and others with large Destructiveness and small Preservativeness. I have observed that when Preservativeness was very large in

individuals, they manifested great anxiety about their health and lives, and became fretful, petty, and peevish when unwell: they are extremely sensitive, and their temper is roused in an instant by the smallest annoyance; but it is a kind of fretful, hysterical feeling, and they shew the greatest dread of bodily pain, and on the slightest symptom of the system being out of order, they have recourse to nostrums, and too frequently become the dupes of ignorant quacks and impostors, who profess to have the panacea for all diseases which the flesh is heir to.

I have met with individuals in whom this organ was large, and the basilar phreno-metrical angle only 14 degrees, and their temper was frequently so irritable and disagreeable that it was a source of annoyance to themselves, and to all about them. I have frequently found this to be the case with persons whose mental and moral powers were highly developed, and who expressed deep regret that they acted so much under the influence of this feeling.

10. ALIMENTATIVENESS.

The function of this organ is the instinct that leads to the selection of food, and prompts us to take nourishment. It is situate in front of the ear, forming a continuation of the organs of Preservativeness and Destructiveness, and extending downward to the opening of the ear. When the organ is small, the head is hollow immediately above the zygomatic arch; when large it is broad, and frequently projecting beyond the cheek bones. The seat of this organ is covered by muscles; hence, allowance must be made for that, and a careful examination as to the thickness of these muscles should be made. A few well-marked instances of the development and appearance of the organ will enable the student to easily recognise it when large or small.

We frequently meet with individuals who are not remarkably wide before the ears, still this organ is large: but in such cases the largeness is indicated by the eyes being pushed upward and outward, which may be frequently noticed in the glutton and the epicure. The organ was remarkably large in Rush, and his strict order to be provided with a sucking pig and apple sauce during his trial was a striking illustration of its powerful influence. It was also large in Palmer: his appe-

tite never failed to the last, and he shewed less anxiety about his terrible position than he did for his supper. Jackson, executed at Chester for the murder of his children, was remarkably large in the organ, and, during the night before his execution, he ate frequently with a hearty relish, and manifested a greater love for food, brandy-and-water, and tobacco, than fear of death. It is certain that some are more addicted to eating and drinking than others. The organ is large in the head of the half-idiot Barclay, who was executed at Glasgow for murder: he, also, manifested the most excessive craving for food; and, even shortly before being brought out for execution, ate as much as would have sufficed for three men.

Dr Caldwell thinks the burning desire of the drunkard for intoxicating drink arises from a diseased state of this organ, and he recommends it to be treated with bleeding, blistering, cold water, and quiet.

Many are saved from the extreme gratification of this organ through poverty. If we consider the lavish expenditure by the wealthy on dinners, merely to gratify this propensity, and the diseases engendered thereby, we shall have no need to regret that poverty prevents us doing likewise. When we look at the enormous revenue in this country drawn from the pockets of the working men for intoxicating drinks and tobacco, it is no matter of wonder that vice, poverty, and ignorance should disgrace our land. The rich abuse this propensity, by a more costly excitement; they take champagne, and other expensive drinks, and Havannahs. Thus is maintained a round of vice, poverty, and ignorance, because a large class of society have a portion of brain that would scarcely weigh an ounce, too active to be habitually guided by their intellect. When human nature shall be better understood, and all trained from birth to strive to gratify the higher powers, from the conviction that the amount of gratification is in proportion to the nature of the feeling gratified, then the intellect and moral powers will have gained the ascendency; and in the exact ratio that this is accomplished, the abuses of our social system will disappear with the cause from which they spring.

11. ACQUISITIVENESS. (Old No. 8.)

This organ is situated immediately in front of Secretiveness and below Sublimity. It was originally termed the organ of Covetousness, but has since been changed to the name of Acquisitiveness. It leads to a desire for accumulation or gain. The objects of Acquisitiveness may be various; in one money, in another paintings, in a third books, &c. It is that organ which, in the inferior animals, induces them to lay up for winter, and a proper development is essential to diligence in any calling. When very powerful, there is an inordinate lust after riches. The person becomes a miser: the whole aim of his life is to hoard; and the loss of money he regards as the greatest of misfortunes. So strong is this feeling, that many persons, though wallowing in wealth, scarcely allow themselves the common necessaries of life. Such was the case with Elwes, who lived in great want and misery, although immensely rich—his fortune at the time of his death amounting to £700,000. Daniel Dancer, the miser, who left £60,000, slept for many years in an old sack, to save the expense of bedding, and never, even in the severest weather, allowed himself the luxury of a fire. He sustained life by begging, and literally died of starvation. The Duke of Marlborough, though worth £50,000 a-year, might be seen darning his stockings at the head of the army, and would walk home from the theatre on a rainy night to save sixpence.

Diagram 50.—The Miser.

A good illustration of the natural language of Acquisitiveness.

When Conscientiousness is deficient, it tends to fraud and theft. If placed in unfavourable circumstances, it is hardly possible for a person, with such an organisation, to be otherwise than a thief. A thief may undoubtedly possess benevolence—he may rob you to-day, and relieve you to-morrow with a liberal hand, if you are in distress. This fact may be easily verified by referring to the lives of famous pickpockets and highwaymen. George Barrington is a remarkable case in point. The celebrated outlaws, Robin Hood and Rob Roy,

were instances in which a great deal of benevolent feeling coexisted with deficient Conscientiousness. The generous behaviour of the robber to Queen Margaret, after her defeat at Hexham, is matter of history; and many other instances of such men displaying great humanity might easily be recorded. In the prison of Copenhagen, for instance, Dr Gall saw Pierre Michel, a crafty and incorrigible thief, who stole for the sole purpose of giving away to the poor. When Acquisitiveness is properly directed, it will lead to a rational accumulation of wealth for proper purposes, as for the sake of securing comfort and independence to one's self and family. Carried much beyond this point, it is a contemptible vice, degrading to a human being. The size of this organ differs very much in different nations. It is said to be small in the Arragonese and Castilians; and these people are not at all given to stealing. The Calmucs, who are notorious thieves, have a large development of the organ. It is generally large in Scotch, English, and Dutch heads; hence the vast fortunes acquired, and the high respect paid to wealth in Great Britain and Holland. It is small in the French head; a Frenchman is satisfied with a moderate competency, and when that is secured he generally retires from business to pass his life in pleasure; while the Briton and the Dutchman toil on to the last in the accumulation of property. In France, little respect is paid to a person merely on account of his wealth; while in some other countries, the mere whisper that a man is rich is sufficient to insure him every homage and attention.

Children with this organ large shew a strong desire to hoard at a very early period; and if Secretiveness be also large, they manifest remarkable cunning in obtaining the objects of their desire. In many families great merit is awarded to those children who excel in the propensity to hoard, and premiums are held out to those who save the most money. The selfish feelings being thus schooled from infancy, parents need not be astonished at their children being thieves and liars—because they have been practically trained to view selfishness as the cardinal virtue.

To train children to habits of prudence and economy, under the guidance of enlightened moral feelings, is a very different state of things to training them to be grasping, hoarding misers and low, cunning tricksters.

This organ prompts us to accumulate, to store our surplus.

There are many periods of life in which we cannot labour, as in sickness and old age. Now, what would become of people if they were content with just satisfying their present wants? Many maintain that the institution of private property is wrong. The most notable in this doctrine is Robert Owen. Now, in his head Acquisitiveness is very small, and Benevolence large; and he has expended about £90,000 in attempting to carry out his schemes.

When this organ predominates it is never satisfied. Its pleasure consists in acquiring. Persons retiring from business, instead of finding that repose and enjoyment which they anticipated, become restless and dissatisfied. Their happiness consisted in the activity of this organ, and those with which it had worked in associated activity. Taken away from that line of life, which constituted the daily stimulus to the brain, nothing in retirement could satisfy them. But when the mental and moral powers predominate, the individual will easily glide from business to private life.

12. SECRETIVENESS. (Old No. 7.)

This organ is situated exactly above Preservativeness. When the latter is large, it may be taken for Secretiveness by the inexperienced observer. In like manner, Secretiveness and Acquisitiveness are frequently confounded with Ideality. But if a horizontal line be drawn from the centre of ossification of the frontal bone to the back of the head, no such mistake can arise.

The function of the organ is to produce an instinctive tendency to conceal the various thoughts, emotions, and desires that arise in the mind, until judged of by the understanding. It gives a prudence to the character, by imposing a restraint upon the other faculties, and serves as a defence against prying curiosity. It enables man and animals to avoid the assaults of enemies, when they are unable to repel them by force. In writing, it leads to irony, and, combined with humorousness, to sly jokes. When this organ is very energetic, and not regulated by strong intellect and moral feeling, it will give rise to cunning instead of prudence, and may lead to the practice of lying and deceit, and, combined with Acquisitiveness, to theft. It supplies the cunning necessary for this latter avocation. When it is very feeble,

there is a want of tact about the individual in his intercourse with society; his thoughts and emotions are expressed without the least regard to time, place, or circumstances. Indeed, he cannot adapt, or experiences the greatest difficulty in adapting, the former to the latter.

The following is a description of a very secretive person: —He is reserved, and neither open nor explicit; is fond of stratagem and finesse, and delights in mystifying and deceiving. His pace is stealthy, his voice soft, his eyes sidelong, his eyelids half-closed, and he can hardly look an acquaintance in the face. A person with much Secretiveness is very fond of prying into the affairs of others, unless his mind be of a superior cast. It is stronger in the female; and the size of the organ corresponds. A woman is obliged to conceal her feelings on a variety of occasions, where a man is placed under no such restraints. This is especially the case in reference to love matters. Let her attachment be ever so great, she dare not avow it till the man has made the fullest advances: she dare not even exhibit any sign of her feeling with regard to him, till he has given her ample reason to suppose that she is the object of his affection. In this, and various other displays of concealed emotion which the delicacy of the sex demands, we see the power of an active Secretiveness. The hackneyed but beautiful lines of Shakspeare are familiar to every one—

> "She never told her love,
> But let *concealment*, like a worm i' the bud,
> Feed on her damask cheek."

Suspicion depends principally upon this propensity, and those who have it large are inclined to suspect that all appearances of good are deceitful, and professions hollow. The actions produced by this organ are indirect and roundabout, and those who are greatly under its influence appear to have a different aim from that which they really do. How far the schemes which originate in Secretiveness be successful, depends much on the intellect. We meet with knaves of every degree of intelligence. Some lay their stratagems so foolishly that they are readily detected: their faces and movements are so indelibly stamped with the natural language of this organ, that every one is put on his guard. But there are other men with this organ combined with large intellect, who lay their

plans so well, that it is almost impossible to discover their deep and comprehensive designs. Shakspeare has drawn perfect illustrations of this kind of character, in his Iago, and also Richard the Third, who is made to say to himself—

> "Why, I can smile, and murder while I smile,
> And cry content to that which grieves my heart,
> And wet my cheeks with artificial tears;
> And frame my face to all occasions."

We frequently meet with dishonest men who have small Secretiveness, and large intellect and Cautiousness, who pride themselves upon their ability to deceive, but they deceive themselves the most. They are apt to overlook some secret means of detection, or forget to conceal something, or unconsciously allow some expression to escape them which leads to their exposure. They are not able to compete successfully with those who have equal intellect and more Secretiveness.

This organ was a leading feature in Palmer; and under the most trying circumstances he could prevent expressing the slightest emotion of his feelings. The remarks made by Palmer's groom are strictly illustrative of the power of Secretiveness in his master. "He was a singular man. He never changed countenance whatever happened. We used to notice it as we passed by. We never could tell whether he had won or lost."

When Field and the other detectives called on Palmer, and informed him of the suspicions that Walter Palmer had not been fairly dealt with, and that they were going to make inquiries, Palmer replied, "Quite right," without the least expression of feeling. They thought they would try him further, and said, "They had also doubts about his wife's death;" but he never said anything beyond "Very right and proper." Simpson, one of the detectives in question, is stated to have said that he never witnessed such an impassibility in all his life. He expected that Palmer would have jumped up and knocked them down, but he never stirred, but went on sipping his wine, and cracking his walnuts, as unconcerned as possible.

Secretiveness is very large in the head of Rush, which led him to conceive that the mask he wore when he murdered his victims, perfectly concealed him from recognition. He never appeared to suspect that his peculiar manner of carrying his head would point out his identity, and lead to his detection.

His large Secretiveness made him feel perfectly secure within himself, and he, like Palmer, thought all his movements impenetrable.

The fact that this organ is so much used, or rather abused, by rogues, renders a good development more necessary to the friends of justice, to enable them to detect the wicked. I have found the organ large in successful detectives: it enables them to conceive a probable course which a villain will be likely to pursue in a particular case, and in prompting the intellect to adopt plans and stratagems to circumvent and bring him to justice.

Genus II.—SENTIMENTS COMMON TO MAN WITH THE LOWER ANIMALS.

These faculties, like those which we have already considered, do not form specific ideas, but produce merely a Sentiment; that is, a propensity, joined with an emotion or feeling of a certain kind. Several of them, viz., Self-esteem, Love of Approbation, Cautiousness, and Benevolence, are common to man with the lower animals; all the others are peculiar to man.

13. CAUTIOUSNESS. (Old No. 12.)

This organ is situated near the middle of the parietal bone, between Love of Approbation and Secretiveness. It produces circumspection, and prompts to look round about, cautiously guarding against danger. When large, it gives great width to the back part of the sides of the head. By looking on the top of the head the broad and extended shape of the sides of the back part given by large Cautiousness will be readily perceived. It is generally highly marked in the heads of children; and we recommend particular attention to observing in their heads the exact position and shape of this organ, that its size and shape may become familiar to the eye and hand. A few points well understood in this way lessen the difficulties, and give much certainty in a more general and extended manipulation.

The manifestation of this organ is generally observed in children in a high degree, which shews the wonderful adaptation of means to an end. In this inexperienced state, the

body feeble and the intellect untaught, we find an instinctive circumspection, guarding, as it were, the child from ill. When this organ is small, the child is constantly running into danger, and all the forethought of careful nurses, or loving parents, cannot keep the child from mischief.

When the organ is very large it produces a doubting, wavering disposition, and in many instances absolute incapacity for vigorous and decided conduct: the mind is in a state of constant apprehension, and the individual never decides on the most trivial concerns without unnecessarily extended consideration. It is powerfully excited by sudden and imminent danger, and individuals become panic-struck from violent excitement.

When small, the person is extremely imprudent; he acts without circumspection, and if engaged in business, he is liable to run to ruin. If Hope be large, the future seems all joy; there is a confident looking forward for brilliant success, with too often a neglect of the means: persons so organised seem to labour under the idea that all desirable things will come at a future time; but Hope does not fulfil her promises, and although disappointments follow each other, still another alluring object presents itself, which in its turn eludes his grasp.

Cautiousness, when large and much stimulated, gives rise to melancholy, anguish, and anxiety, rendering life extremely miserable. Many suppose that suicide is the result of error of judgment. It proceeds, however, from a diseased brain, and the misery and torments which are felt cannot be conceived by one whose brain is in a healthy condition. When Hope is small and Cautiousness large, the present cannot be enjoyed from its fearful forebodings. The future seems dark and cheerless, and evils are suffered by anticipation which are never realised. Some never seem to look before they leap; they speak first and think afterwards: such men are continually in broils, and are a constant source of anxiety and trouble to those connected with them. In business they lose money by trusting unworthy parties—neglecting to take proper securities and agreements; in fact, their whole conduct is marked by recklessness, and experience teaches them little.

With the organ too great, misery will be the result, and excess of fear and doubting. How important then is it, in the education of children, that all should know whether this

feeling should be carefully and constantly excited or habitually checked!—and of course it is equally necessary to know how to effect either of these objects. No system of metaphysics teaches this. Phrenology is the only sure guide, and points out what ought to be done in such cases. From no other source can we learn how to efficiently accomplish what all must desire to know—how to improve to the highest pitch the natural tendency and capabilities of children. Who can imagine the misery and suffering which would be prevented by early attention to the proper training of the feelings, and how much the general progression of our race might be accelerated?

This organ is small in Rush, and he manifested great want of circumspection. His large Secretiveness, Self-esteem, Firmness, and Combativeness led him to conceive that he was capable of any undertaking with certainty of success. His great want of circumspection was strikingly displayed in the cross-examination of the witnesses on his trial. When the chain of evidence against him was at any part incomplete, he invariably made out what was wanting by his silly mode of putting questions to the witnesses.

This organ is small in Palmer (see Diagram 20), and the reckless career which he led from his boyhood to his death affords striking illustrations of his great want of the faculty of circumspection. As a betting man his conduct appears to have been totally void of forethought. We were informed by Palmer's head groom that he would purchase horses at a great price and sell them again for a great deal less than they were worth; and he said, "I don't think he betted well, he lost large sums of money." Soon after the death of his wife he attempted to insure the life of his brother, Walter Palmer, for no less a sum than £83,000. Proposals were made to six offices, but only one accepted, and that was the Prince of Wales. The premium for the six policies for which proposals were made—if they had all charged the same per centage as the Prince of Wales, £5, 9s.—would have amounted to £4469 per annum, a sum that Palmer had no possible means of paying, as he had to get a bill discounted by Pratt for £1500 to enable him to pay the premium on the policy of the Prince of Wales. This transaction alone illustrates the extent to which he was prepared to push things at all hazards.

The natural language of this organ is shewn in the move-

ments of the body when under its influence. The arms are extended forward, to feel out, as it were, approaching danger; the legs are lifted, and the feet placed with doubt and hesitation at first, and it is only after feeling that all is safe that further advances are made, with the same doubt and deliberation. The eyes are opened wide, and roll from side to side, as if to take within the range of vision the greatest extent of space. The head is turned from side to side to circumspect and look all round about. A hare squatting in a field shews, with its extended eyes and quick movements of its head from side to side, a fine example of the natural language of this organ.

14. LOVE OF APPROBATION. (Old No. 11.)

This organ is situated on each side of Self-esteem. When large, it displays great fulness and breadth in the upper and back part of the head. It is the organ which inspires us with a desire for the good opinion of others. When fully developed, and under the influence of the moral powers, it is highly useful, and is productive of very many advantages. When very large, and not thus influenced, it produces ambition, envy, and excessive vanity, and will make its possessors the easy dupes of flatterers. Mr Combe aptly remarks, "that when it is large, and when we commend or approve of such, the eye sparkles, the countenance opens, &c. On the other hand, when small, he shews by the undisturbed fixture of his countenance that our censure or applause are alike unimportant." He also remarks, "The faculty, when powerful, gives a soft soliciting tone to the voice, puts smiles into the countenance, and produces that elegant line of beauty in the lips which resembles Apollo's bow." It is larger in the French than in the English, and more active in women than in men. Love of Approbation is most displayed by those whose success in their profession depends upon public applause, such as actors, painters, &c.: it is in the gratification of this feeling, indeed, that the chief reward of their exertions often consists. People who are fond of appearing much before the public, either in the shape of orators, lecturers, chairmen of meetings, movers of addresses, or any other in which they will be spoken of, and their sayings and doings blazoned in the newspapers, have generally a large organ of Love of Approbation. "I

love vanity," observes Dr Gall, "because it gives rise to a thousand artificial wants, augments the comforts of life, embellishes our habitations, and employs and gives support to the industrious. It is to it, in a great degree, that we are indebted for the flourishing state of the arts and sciences. Collections of sculpture, of paintings, of natural history, of books—our gardens, our monuments, our palaces, would be either paltry, or altogether wanting, without the inspiration of vanity, the love of distinction."

"A large organ of Love of Approbation, in a head of great general size, gives origin to the ambition of a Bonaparte; while a large development of the organ in a small head produces frivolous vanity, like that of the Hindoos, whose heads, as Lady Irwin says, 'are toyshops filled with trifling wares.'"

Mr Combe calls this feeling the drill-master of society; and in this capacity it leads to acts of a moral tendency. Ill-feeling and selfishness are restrained to please others. How many of the lists to charitable institutions are filled up by love of approbation; but if good is really done in the present state of society, we must not be too fastidious about the motive. It is impossible to calculate how much of the vice and misery pervading all classes, is owing to a wrong direction given to this faculty, by those who have the care and teaching of children. Even in infancy we find mothers exciting vanity in the child, by praising baby's fine cap, or pretty face. At school, envy in all its forms is encouraged; and a first place can only be obtained by the degradation of a schoolfellow. The present prize system at schools sows the seeds of envy, hatred, and uncharitableness.

When this organ is excessive, it craves for compliments, is led by fashion, and ever asks, before adopting a course of conduct, what will the world think of it. "What will Mrs Grundy say?"

The natural language of this organ is to carry the head backwards, and a little to the side; it gives a graceful rolling motion to the head and body when walking, and imparts a pleasing tone to the voice.

This organ is large in the head of Palmer, and his general conduct was strongly marked by an excess of vain display. His career as a medical student in London is marked at every step by low, degrading vanity, and gross sensuality. He

lodged with a Mr Aynes, in Bartholomew Close, and here he indulged in that reckless extravagance which led to pecuniary difficulties. He ate and drank of the best, and frequently commenced the day with a champagne breakfast, to which a party of his fellow-students would be invited, for no earthly reason whatever; who in return for his misjudged prodigality, did him the honour of speaking of him among themselves as stupidly gooduatured. In all such display we see only the lowest vanity, and the gross sensuality of the epicure. Such conduct is quite in keeping with his large Love of Approbation and Alimentativeness, two of the leading organs in his brain; which played no small part in bringing him to his doom. He was better known at the betting-houses than at the lecture-room of St Bartholomew's, at which places he spent the chief part of the day, or in the pursuit of females of bad character. When evening came he was at the theatre, the night-house, the oyster-shop or chop-house, where every luxury is temptingly provided to administer to the depraved appetite of the sensualist. If we look into one of these night retreats, we see at the counter young gallants cooling their parched throats with wine, smoking daintily their cigars, and swearing to a surprising extent. In the inner room are to be seen rustling silks and satins, gay feathers in bonnets, sensual, vain faces daubed with paint, and much forced mirth and gaiety. These were the places Palmer delighted in. There he found men well up in the slang of the racing fraternity, men whom he regularly met at the race-course. They were flashy in dress, shallow in intellect, and depraved in morals.

Palmer's rooms were fitted up in approved medical fashion. The walls were hung with anatomical preparations and models. It is said that he purchased more of these than any other student. His library of medical works was not equalled by that of any of his acquaintances. It is stated by those who were at St Bartholomew's in Palmer's time that he must have spent on these at least £2000 while walking the hospital. We have here another striking illustration of Palmer's excessive vanity. He had all these things for show; he had not the type of brain to profit by such treasures. Of the medical books which chiefly engrossed his attention, it is remarkable that they were those that treated of poisons. He was exceedingly backward in his anatomical studies.

The natural language of this organ was a striking feature in

Palmer, and I was particularly struck with its manifestation as he strode out of the condemned cell, by his elastic, easy step, the rolling motion of his head and body, and the free and jaunty air which he assumed.

15. SELF-ESTEEM. (Old No. 10.)

This organ is situated at the back of the head, immediately above Concentrativeness, and behind Firmness. It produces self-love in general. It inspires the mind with a degree of confidence in its own powers, and, when combined with superior sentiments, gives a dignity and greatness to the character. When largely developed, and not regulated by the higher powers, it manifests itself in arrogance, pride, conceit, or egotism. Combined with Love of Approbation, also largely developed, it gives rise to envy; with Destructiveness, not directed by Benevolence and Conscientiousness, to a delight in exposing others' faults, and endeavouring to make them appear ridiculous or despicable. It is the great self-esteem of the English which renders them so insufferable on the Continent—which leads them to decry all other nations, and to look upon themselves as in every respect the first people in the world. The songs which are addressed to the self-esteem of the nation are universally popular: witness "Rule Britannia," and "Ye Mariners of England." That famous toast, "The British Constitution —the pride of surrounding nations and the envy of the universe," is a preposterous ebullition of immoderate self-esteem. The Scotch Highlanders have a vast opinion of themselves, and I apprehend that the organ of Self-esteem is, generally speaking, decidedly larger in them than in their Lowland brethren.

The results of a small development are modesty and humility of demeanour. The person thinks little of himself, however admirable his merits, and is perfectly free from presumption. Such persons are great favourites with those who have much self-esteem. There is no collision of feeling between them—the humble mind unconsciously giving way to the proud one, and thus affording it gratification.

It may be asked, Does self-esteem produce vanity? No. The proud man despises the opinions of others; the vain man lives, as it were, upon them. "That man is too proud to be vain," was the remark of Dean Swift, and is founded on a

correct view of human nature. "The proud man is penetrated with a sense of his superior merit, and from the height of his grandeur, treats with contempt or indifference all other mortals; the vain man attaches the utmost importance to the judgment of others, and ardently seeks for their approbation. The proud man expects that the world should come and discover his merit; the vain man strikes at every door to draw attention towards him, and supplicates even the smallest portion of honour. The proud man despises the marks of distinction which constitutes the happiness of the vain one. The proud man is disgusted by indiscreet eulogiums; the vain man inhales incense with rapture, however unskilfully scattered upon him: the proud man, even under the most imperious necessity, never descends from his elevation; the vain man humbles himself even to the ground, provided by this means he attain his end."—*Gall.*

When this organ is large, the head runs upward and backward from the vertical line drawn from the mastoid process. Dr Gall discovered it in the head of a beggar who had inherited a considerable fortune from his father, but thought it beneath him to apply to business either for its preservation, or for the acquisition of a new one.

Without a due development of this organ it is impossible to achieve greatness; nor can happiness be realised without that amount of self-esteem to produce self-confidence and self-respect; we cannot command the esteem of others, until we have learnt to respect ourselves, nor can we make a proper use of the powers betowed upon us, without a sufficient degree of self-confidence. Dr Adam Smith, in his "Theory of Moral Sentiments," remarks, that it is better for an individual to have too much, rather than too little of this feeling; because if we claim more than we are entitled to, the world will give us credit for at least what we possess; but if we pretend to less, we shall be taken at our word, and mankind will rarely have the justice to raise us to our true standard.

Individuals with large self-esteem, and not well directed, are prone to estimate everything in relation to self. My house, my horse, indeed everything which they possess, is estimated, not for its intrinsic worth, but because it is mine. This fancied superiority of self produces love of detraction. They are fond of taking their neighbours down a peg, that themselves may appear a peg higher.

Self-esteem is extremely active in society. The learned professions look down upon and despise the merchants as a plodding set, and the merchants look down upon the manufacturers, the wholesale dealers look down upon the retail dealers, and they look down upon the handicrafts—and the men of title look down and despise all. These are strange fantastic tricks for people, who boast of being the most religious of any other nation. It will be generally found large in leading democrats. They cannot submit to be ruled, but, when in authority themselves, are often the greatest tyrants—their self-esteem requiring that servile obedience from others which they revolted from giving. Preachers, under the influence of this feeling, will not hear of any religion, opinion, or sect, but their own—all others must be wrong. Combined with Destructiveness and Veneration, in proportion to their devotion, are their arrogance and cruelty to those who differ from them. From this combination sprung the Inquisition, and all the massacres and cruelties which have been perpetrated in the name of religion. In the religious squabbles and persecutions of the present day, we can trace the same combination, but modified by circumstances and the general advance of intellectual cultivation. The intolerant zeal so frequently manifested by professing Christians on behalf of their sectarian views is to a great extent produced by this feeling. "There is no grace," says Cowper, "that a spirit of self can counterfeit with more success than a religious zeal. A man thinks he is fighting for God, when he is merely fighting for his own notions. He thinks he is skilfully searching the hearts of others, when he is only gratifying the malignity of his own; and charitably supposes his hearers destitute of all grace, that he may shine the more in his own eyes by comparison. When he has performed this notable task, he wonders that they are not all converted: he has given it to them soundly, and if they do not tremble and confess that God is in him of a truth, he gives them up as reprobate, incorrigible, and lost for ever." Cowper was a sincere and religious man; and in this description he represents that dogmatic self-esteem which arrogates to itself infallibility, and which is found in some individuals of all sects.

The natural language of this organ is manifested in erect body—the head and shoulders drawn a little backward. It gives a stiffness and directness in the gait and carriage—the

expression of the face is fixed and hard—the lips closed and somewhat extended—the voice is solemn—the enunciation slow and distinct—the whole deportment dignified and stately, often mingled with reserve.

Genus 3.—THE SUPERIOR SENTIMENTS.

We shall now treat of what are termed the Superior Sentiments, such as constitute the moral governing qualities in the human character. The coronal region, or the upper part of the brain, is the seat of these sentiments. The only certain rule by which the size of the organs in this region can be correctly estimated is the following:—Draw a horizontal line from the centre of ossification of the frontal bone backward, which will correspond to about the centre of Causality and the centre of Cautiousness; all that part of the head which lies above this line belongs to the moral sentiments, allowing a little for Cautiousness and a little for Causality. If the part which lies above the horizontal line be low, and flat, and short from the front to the back of the boundary line, as well as narrow from side to side over the top of the head, you may rest assured that the moral sentiments are small; if it be high and broad and long above the horizontal line, you may be certain that they are large.

16. BENEVOLENCE. (Old No. 13.)

This organ is situated at the fore-part of the top of the head, on each side of the middle line, and anterior to the fontanelle, or what is commonly called the opening of the head, and extends downward to the top of the forehead. When large, it gives elevation and fulness to the middle of the anterior region above the horizontal line drawn from the centres of ossification of the frontal bone. There is great reason to believe that a high forehead was supposed to indicate benevolence of disposition, before the time of Dr Gall. Shakspeare speaks of "foreheads villanously low;" and the ancients, in designing their deities, generally invested them with lofty foreheads, thus indicating commanding intellect and distinguished benevolence. This subject, however, was not philosophically thought of till Gall took it up, and demonstrated that the sentiment depends upon a special organ of

the brain. This organ disposes to compassion and active benevolence; and produces a desire for the happiness of others, and charitably to view their actions.

Where this organ is largely developed, there will be no luxury sweeter than that of doing good. Liberality will invariably characterise its possessors, and they will feel the full force of that declaration, "that it is more blessed to give than it is to receive." Some children, where it is large, have been known to give all their sweetmeats and toys to others, and never seem so happy as when they are distributing around, even to the last portion of what they may possess. Some of the ancient philosophers, such as Plato and Socrates, are splendid instances of the beauty and power of this noble sentiment. The story of the Good Samaritan is a fine specimen of benevolent feeling. One of the grandest instances on record occurs in the history of Sir Philip Sydney, who, when mortally wounded at the battle of Zutphen, and labouring under the tortures of excessive thirst, presented the water which he was in the act of raising to his mouth, to a dying soldier whom he saw eagerly eyeing it—saying, "Take it; your want is even greater than mine." In Christ's Sermon on the Mount we have a sublime emanation of blended benevolence and conscientiousness. Where the organ is very large, with deficient Cautiousness and Acquisitiveness, it may lead to the most unwarrantable and imprudent acts of generosity. "Man," observes Dr Gall, "is generally more good, kind-hearted, and just, than he is wicked and unjust. People of simple manners —the comfortable peasant, the industrious artizan, for example, are very benevolent towards their equals. We rarely see among them an orphan who fails to meet with the assistance which his situation demands. They often treat them as they would their own children, and not unfrequently with even greater kindness. Seldom do the poor, who knock at their doors, return empty-handed: their direct impulse is always one of kindness towards the unfortunate." Dr Gall himself had a large organ of Benevolence, and, in harmony with this development, was inclined to view human nature with a generous eye.

When this organ is small, the mind will generally be narrow and contracted, and self will absorb every feeling and monopolise the whole attention, and there will be the greatest indifference to the good of others. When small, and Destruc-

tiveness large, it will be difficult for those so gifted to be either amiable or useful members of society.

Small Benevolence does not produce cruelty, but leads to regardlessness to the welfare of others; a powerful restraint, however, is removed from the propensities when this organ is deficient. One who has large Conscientiousness, and small Benevolence, may be faithful as a matter of duty, but will not manifest that kindness, and gentleness, and soothing sympathy, which are the leading characteristics of benevolence.

This organ is found in the lower animals. When the forehead of the horse is hollow and narrow in the middle, just above its eyes, it is invariably vicious and disposed to kick and bite. In mild, good-natured horses, the contrary form is always present. In cats and dogs the same rule holds good, and that great differences exist in these animals is well known.

The organ is remarkably large in the head of Eustache, the negro (see Diagram 23), whose merits were publicly acknowledged by the Institute of France, from which he received the prize of virtue. During the contests which followed the attempts of the French to restore slavery into St Domingo, the distinguished exertions of Eustache in behalf of his master, M. Belin, were unbounded. By his courage and devotion, he saved the life of his master, with upwards of four hundred other whites, from the general massacre, and several times preserved the fortunes of M. Belin. At Paris, the profits of his industry, and the rewards he obtained, were all employed in relieving the miserable. At Port-au-Prince, he often heard his master, who was an old man, deplore the gradual weakening of his eyes. Eustache could not read, but, inspired with the desire to please his master, he applied himself secretly to study, and took lessons early in the morning, that he might not encroach on the time required for his regular duties. Having acquired the wished-for knowledge, he approached the old man with a book in his hand, and proved to him that if nothing seems easy to ignorance, few things are impossible to devotion. If we compare the head of Eustache, with those of Palmer, Thurtell, Rush, Dove, in fact with all murderers, we at once perceive the remarkable difference in the region of Benevolence, above the centre of ossification of the frontal bone. We must not look for the activity of this organ merely in bestowing alms or giving money: many give money to save

themselves trouble, who are perfectly destitute of that benevolence which prompts to real acts of kindness and soothing sympathy. Palmer was known to give money to grooms, hostlers, chambermaids, and waitresses, and to subscribe to charities and missionary objects, yet he could coolly witness, day after day, the dying agonies of his poor wife caused by his own hand, and the terrible death-pangs of his victim Cook, without pity or compassion. Palmer's benevolence was like his religion, of which he made great show. He would rebuke people who made use of profane language. He has been known to travel fifty or sixty miles on a Saturday, to be at Rugely church on Sunday. In reading the responses, he was louder than any one else in the church, and he always appeared remarkably attentive to the sermon, and took notes of it. If church observances are a proof of a religious man, few in Rugely stood higher than Palmer. But this, as we all know, was rank hypocrisy, all serving to cover his infamy, and to acquire the character of being religious, to gratify his Love of Approbation and Imitation. It was the same vain-glory which prompted his profession of religion, that led him to subscribe to charities and give money to grooms and waitresses, and to all the ostentatious display and sensual extravagances for which he was notorious whilst he was a medical student in London.

When this organ is low in children, every means should be taken to practically train them to habits of kindness and benevolence. Many suppose that instructions in good precepts, and learning by heart moral lessons, are sufficient for this purpose. But there is a vast difference between instruction and training. Instruction is simply communicating knowledge, while training implies a repetition of certain modes of action in the mind, until they become habits. It is a law of our nature, that any organ, when accustomed to repeat a certain mode of action, acquires strength and facility in so doing, and from this arises the force and advantage of habit. If we were to tell a young lady that she must strike certain keys of an instrument to produce particular notes, we might continue the instruction for years, but it would not enable her to play a tune without her fingers were trained by practice; so it is with instruction in moral precepts, we may instruct a child in the moral precepts of the Scriptures, but if he is not trained to practise these precepts, instruction will be of little use. If

we wish children to be kind, benevolent, and respectful, we must not be content with telling them, but induce them to act, and we must do so ourselves, by treating them with kindness, respect, and courtesy. We should never lose sight of the vast difference between training and instruction: in training the mind is active—in receiving it is passive. A child brought up in a family where Self-esteem, Combativeness, and Destructiveness are very active, and made the object of their manifestation, the same feelings would be aroused in resentment, and its manners would become coarse, harsh, and vulgar. But if trained under the influence of a family where Benevolence, Conscientiousness, Veneration, and Love of Approbation are all active, and where every one was treated with kindness and respect, we should readily recognise the difference betwixt the children.

The natural language of Benevolence is shewn in the pleasing smile, commonly known as a good-natured expression; the whole of the features are relaxed, producing a mildness and benignity which are instantly read by all, but which cannot easily be described; it gives sweetness to the voice, kindness and tenderness to the manners.

17. VENERATION. (Old No. 14.)

This organ is situated at the centre of the coronal region behind Benevolence. Dr Gall, when at school, observed a great difference among children, some being pious, and others quite the reverse. Gall's father had ten children, one of whom was devout from childhood, and wished to become a priest. He was, however, put to business, but at the age of twenty-three, he abandoned it and took orders for the priesthood. Dr Gall was intended for the church, but having no partiality for it, left it for the study of medicine. This led him to believe that the religious sentiment was innate. He noticed the heads of religious people, and found the region of this organ prominent. It was remarkably so in his brother, and also in the antique statues and portraits of eminent saints and high priests. He entered the churches, and saw the same marks in the greatest devotees. This organ produces the sentiment of reverence, and veneration in general. It is the feeling which prompts to worship. If the understanding be limited, and no revelation has reached the indivi-

dual, the unfortunate being may worship stocks, stones, and even brutes. We have frequently heard it remarked that man with this organ had no need of revelation; but it should be remembered that it is blind of itself, and therefore requires guidance. Many will not admit the innate tendency to worship. They say that we perceive harmony, beauty, order, power, and goodness in the works of creation, and that we infer the existence of a Creator and Director, and feel constrained to adore. That the understanding of man sees through nature up to nature's God we readily admit, but there it stops. The mental powers perceive facts and draw inferences, but do not feel emotions. Phrenology goes further, and proves that we possess a sentiment, the innate tendency of which is to adore. That this view is correct, the universal practice of this tendency proves, and we frequently see the manifestation of this feeling the strongest in people with the most feeble understanding. The worship and adoration of rude figures, reptiles, and monsters, are facts not compatible with the theory that man adores and worships from a process of reasoning. We frequently meet with persons who express doubt as to the stability of religion. But the organs of Veneration, Wonder, and Hope are implanted in the human brain, and correspond with sentiments in the mind which neither arguments nor ridicule can extinguish. Religion can never be extinguished, or even endangered, so long as these sentiments are in the mind, particularly theological doctrines, which, at one time fashionable, may subsequently fall into decay, but veneration and adoration will animate the human soul so long as the race of man exists.

Some say that Phrenology is hostile to religion. How that can be we are at a loss to perceive, as it is the first system of mental philosophy that has recognised an innate faculty producing a tendency to adore.

This organ is larger in women than in men, and they are more obedient and more disposed to devotion. When large in a preacher, it is manifested in prayer by the soft breathing fervour of his tones. It gives respect for age, and deference to superiors in rank. It prompts to filial piety in children, and produces gentle and placid reverence, with which a child looks up to its parents. If this organ be small, but Benevolence and Adhesiveness large, children may live with their parents as friends, and be kind and attentive, but they will

not regard them with deferential reverence, nor submit their will to that of their parents. Servants in whom this organ is large are the most obedient and deferential.

The abuse or wrong direction of this organ produces superstition and fanaticism. An individual may have a large development of Veneration, without a high degree of religious feeling. Voltaire was one of this class. Still he manifested his large Veneration, in his sycophancy to kings and persons of high rank. He was called in his own age and country a fanatic for erecting a church at Ferney, which stands to this day with the following inscription—"Erected to God, by Voltaire." This organ is large in the annexed head of St Bruno, and is a good illustration of the natural language of Veneration, which is indicated by the peculiar lowering of the eyelids, and bowing of the head. This manifestation may be observed in the Sisters of Mercy, as they pass through the streets of many of our large towns.

Diagram 51.—St Bruno.

18. FIRMNESS. (Old No. 15.)

This organ is situated between Veneration and Self-esteem. Its size must be estimated by the same rule as that of Benevolence—that is, by the height above the horizontal line drawn from the centre of ossification of the frontal bone. It

gives firmness of purpose and resolution. Firmness has no relation to external objects, it only adds a positive quality to the manifestations of the other organs of the brain. Thus to Combativeness it imparts determined bravery, to Conscientiousness inflexible integrity. When Firmness is predominantly active it produces obstinacy and stubbornness, and its manifestation may be observed in stubborn, untractable children.

The importance of this organ in the formation of character cannot be overrated. Without a due endowment of perseverance nothing can be accomplished. Many individuals succeed, not from superiority of mental and physical qualities, but from the steadiness with which they pursue an object. It is important to distinguish, however, between the manifestations of firmness and the gratification of the large organs. An

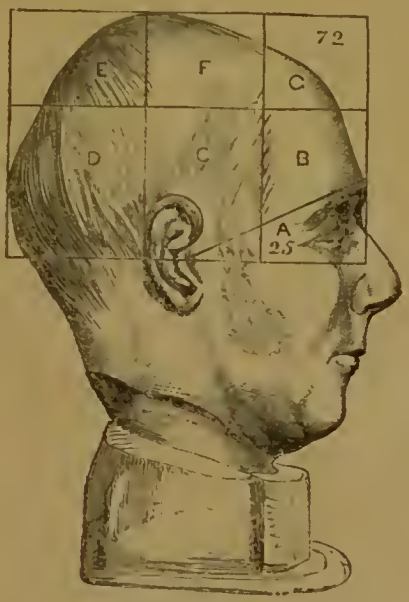


Diagram 52.—Mr W. Large Firmness.

individual with predominant propensities will persevere in gratifying them, whether he has the organ of Firmness or not. He may be persevering in one pursuit and vacillating in another. Firmness conduces to perseverance, but it does not

alone produce it, except in government, or where the influence of others is to be overcome.

The character of those who have large Firmness combined with Self-esteem and Concentrativeness, seems to be stereotyped. They easily resist the influence which others may bring to bear upon them. Whatever notions or habits they adopt in childhood they are apt to hold through life, and it is therefore of the greatest importance that their first impressions should be of the proper kind. If they once acquire vicious habits, it is difficult to reform them; threats, punishment, or entreaties, are often ineffectual. A man with Firmness, Self-esteem, and Combativeness large, and Cautiousness and Secretiveness small, will be headstrong, rash, and impetuous, and manifest a strong desire to govern others. He

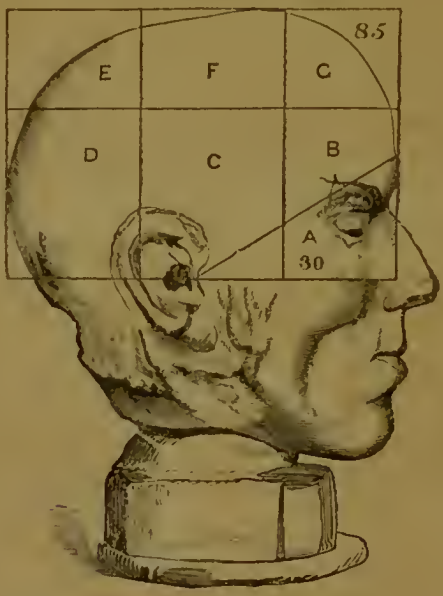


Diagram 53.—Mr Goss. Small Firmness.

will be incapable of governing himself, and is easily duped by knaves whom he looks upon as immeasurably inferior to himself. If several persons with large Firmness are associated, the one with the largest Firmness, and all other things equal,

will have the most influence, and the rest will yield a reluctant submission. A knowledge of this principle is of great importance to one who has the control of children. A child with large Firmness will readily yield to a man who has it still larger. Obstinacy is an abuse of firmness, and the result of a great development of this organ, with only moderate or small Conscientiousness. A strictly conscientious man can never be long wilfully obstinate, however great his Firmness, as he gives way before what he conceives to be the dictates of justice.

The natural language of this organ is indicated by an extremely firm, upright gait, as though an iron rod went from it through the spine. It imparts a peculiar hardness to the manner, and a forcible, emphatic tone to the voice. Those in whom Firmness and Self-esteem are large, and Veneration small, find it difficult to bow, they are stiff-necked. Those in whom Love of Approbation and Veneration are large, and Firmness small, are ever bowing; they seem to find it difficult to keep straight.

The organ was particularly large in Joseph Hume, and few manifested more firmness and steadiness of purpose than that gentleman.

19. CONSCIENTIOUSNESS. (Old No. 16.)

This organ is situated on each side of Firmness and immediately before Love of Approbation. When well developed it rises high above the horizontal line, drawn from the centre of ossification of the frontal bone, and the shape of the head over the top, above Cautiousness, is round and high—when small, the head slopes off from Firmness. If Firmness be also small this part of the head is flat, and there is little, if any, above the horizontal line. The function of this organ is the sentiment of the sense of moral obligation, which produces the feeling of duty or of obligation, independently of fear of punishment, hope of reward, or any extrinsic motive. The sense of moral obligation, as an innate faculty, has been much disputed by metaphysicians. Hume ascribed it to a perception of utility—thus placing man on a level with a chest of drawers. Hobbes to self-love. Mandeville to love of praise: he said that "the moral virtues are the political offspring which flattery begot upon pride." Dr Clarke to the fitness of

things. Paley to the hope of eternal reward. Stewart, Brown, Hutcheson, Cudworth, and Reid, insisted on a moral sense. Phrenology has therefore conferred a great boon upon moral science by establishing this point.

Mr Combe well remarks that this sense of moral obligation must not be confounded with justice, for justice is one of its results, being a compound idea, or a conclusion resulting from the operation of the intellect upon human actions. The intellect investigates motives and consequences of actions. But there it stops, no feeling of duty or obligation is the result. But as soon as the intellect has thoroughly examined a subject and penetrated into the springs from which it proceeds, a feeling of decided approval or condemnation arises spontaneously in the mind. The intellect sifts testimony and draws inferences. Conscientiousness decides upon right. We frequently meet with men of great intellectual talents, who, after hearing testimony, could not tell where justice lay.

This organ controls and regulates all the others. If Acquisitiveness prompts too keenly, Conscientiousness reminds us of the rights of others. It permits defence, but reminds too active Combativeness and Destructiveness that malicious aggression cannot be allowed. If Benevolence tends toward profusion, it reminds us to "be just before being generous." It brings all the faculties to the standard of duty, and gives directness of purpose in the fulfilment of obligations.

When this organ is small, the individual will be too liable to act from an immediate predominant feeling; he is courteous and affable, or repulsive and harsh, accordingly as he is influenced by Love of Approbation, Self-esteem, Combativeness, Destructiveness, or Benevolence. People of this class are never to be relied on. They misrepresent and extort in dealing—as buyers they depreciate, as judges they are unsound, as friends unreasonable.

It is not uncommon to hear people talk of the *laws* of *honour*, and they would wish us to believe that they are prompted by conscientiousness. But such is not the fact: their idea of the laws of honour are the offspring of Self-esteem and Love of Approbation. The conscientious man will remain inflexible so long as he feels that he is right, but would at once acknowledge his fault if aware that he was wrong, and so far from considering it a degradation, he rises in his own estimation. But persons in whom Conscientiousness is weak, with

Self-esteem and Love of Approbation large, would deem themselves lost by such an acknowledgment; their Self-esteem refuses to admit its fallibility, and Love of Approbation feels that the world's esteem would be lost; and the poor deluded victim will go to the field and die, rather than own that to be wrong which is utterly indefensible.

With some it is a favourite maxim, that "every man has his price," and those who have Acquisitiveness and Love of Approbation large, and Conscientiousness small, look upon it as a profoundly discriminative maxim. But there are those that neither price nor honours can induce to deviate from the path of rectitude. Those in whom Veneration, Benevolence, and Conscientiousness predominate, no price can purchase; they do justice, love mercy, and walk humbly with God. Those in whom this combination exists, to use the language of Scripture, are "a law unto themselves." Those in whom it is deficient are slaves to their own ungovernable desires, and are morally blind.

The deficiency or non-activity of this organ leads to the commission of acts which society deems no crimes—such as not keeping appointments and promises, telling "white lies," coquetry, jilting, gambling, professional quackery, writing impertinent anonymous letters, puffing trashy things, giving false characters to servants, borrowing books and umbrellas and not returning them, divulging secrets—which are all breaches of honesty frequently committed by people who would be astonished at being told that they were not honest.

This organ is extremely small in the head of Palmer, as may be observed in the back view, Diagram 20; and all his actions through life shew that he was totally devoid of the feeling. From his earliest boyhood he was addicted to falsehood and fraud. No one ever placed confidence in him without being deceived. He robbed his employer and cheated his companions. It is believed that he seduced no less than fourteen females from the path of virtue.

During Mrs Palmer's illness, her great anxiety appears to have been for her little boy, and she wished to have him placed under the care of Mrs Salt. When Palmer took the child to Mrs Salt, he appeared deeply affected. He said, "I have brought dear little Willie to you. It was Anne's desire, and I wish to carry out my dear wife's last injunction, which was to place him under your care." When we reflect on such

vile hypocrisy, we naturally feel disgusted. Palmer spent the night following his wife's death in the embraces of his maid-servant, and nine months afterwards she had a child in his own house. Palmer kept a kind of outline diary, in which are found many significant entries. He thus chronicles his wife's death—"September 29th, 1854, Friday. My poor dear Annie expired at 10 past 1." Nine days after this, we have the following entry—"October 8th, Sunday. At church, —sacrament."

His extravagance dated from his childhood. He borrowed money under false pretences from his father's labourers. As an apprentice, he abstracted money from letters entrusted to his care. While walking the hospital—St Bartholomew's—he committed his first forgery, and dissipated a fortune in riotous living. As a married man, he was notoriously unfaithful to his marriage vow. His wife, his mother-in-law, his brother, four legitimate and three illegitimate children, his confidential associate, and several others, all mysteriously perished. The death of every one of those persons was a gain to him. He had a motive for removing them, and they were removed. Besides these criminal offences, he was guilty of the baseness of accusing his dead wife of forging the name of her mother-in-law. On the other hand, he was a very civil-spoken man. He was a regular attendant at church; made notes of the sermons, subscribed to charities and missionary objects, and took the sacrament.

Without the aid of Phrenology, we could not bring our mind to believe that human nature was capable of acting so vile a part on the stage of human life. But with the head of Palmer before us, no species of crime, however atrocious, produces surprise. A head so destitute of moral qualities, and the brutish propensities so very large, indicates a character capable of committing the most revolting crimes without the least compunction of conscience, either before or after the deed. Indeed, Palmer's head is the most dangerous type we have seen, because under the cloak of friendship and affability he could perpetrate the most diabolical deed without rousing the suspicion of his victim; nothing being sacred to such a man, but the gratification of his own selfish feelings. Acting under the influence of large Secretiveness, he was able to conceal his most fiendish designs; and his peculiarly unexcitable temperament allowed the brain to act without any

kind of impulse or agitation. This accounts for that remarkable coolness so strikingly manifested in all his movements. It is generally supposed that great criminals are punished by the accusation of conscience; but it is a mistake, for the organ of Conscientiousness is extremely deficient in men who have devoted their lives to crimes, and in consequence they are strangers to the feeling of remorse.

It is frequently urged, as an objection to Phrenology, that if men commit crimes owing to deficient Conscientiousness, it is unjust to punish them, and therefore they should be set at liberty. But whatever be the cause that prompts men to violate the rights of others, society is certainly justified in protecting itself from their outrages, whether they are idiots, criminals, or insane; and any code of laws that has for its object the safety of society, and the improvement of the offender, will be in accordance with phrenological principles. Phrenology does not justify unnecessary punishment. The safety of society renders it necessary that criminals should be deprived of liberty which they have abused, and so guarded that they can do no more mischief to their fellow-men; but any further proceedings against them should be intended for their reformation. Society has no right to punish any one from revenge. The criminal, instead of being considered a fit object of severity, and treated like a beast of prey, ought to be managed and treated as a moral patient, and a remedy applied suited to the nature of his moral disease. At present, criminals are treated all alike, whatever the nature of their offences. No allowance is made for the difference in organisation, education, or degrees of intellect. Whatever may be the moral disease with which they are affected, the same remedy is indiscriminately applied to all. The consequence is, that they leave the prison, as bad, or little better, and in too many instances in a worse state of mind, than when they entered. They are let loose again upon society, again they commit crime, and are again imprisoned and punished, with greater severity, but still with the same effect. In thus acting, the great objects of criminal jurisprudence are defeated, for neither society is protected nor the criminal improved.

20. HOPE. (Old No. 17.)

This organ is situated before Conscientiousness, on each side of Veneration. Its name sufficiently defines its function, which is the earnest expectation of what appears good and desirable. "It induces us to take gay and pleasant views of the future, and keeps up our spirits in the midst of misfortune: though clouds lower around us, we are cheered with the expectation of speedy sunshine. Mungo Park, in his desolate sojournings in Africa, and Sir John Ross, in his miserable Polar solitude of four years, must have been powerfully supported by the influence of this organ. One of Ross's men died of sheer despondency, which would not have happened had he possessed the sentiment in vigour. The strong hope of a reprieve has sustained the spirits of malefactors till within an hour of their being brought upon the scaffold. Mary Macinnes, while under sentence of death for murder, never lost the hope of being pardoned. It is the province of Hope to gild an object, until it becomes fascinating, and then to anticipate its enjoyment. The full development of this organ is necessary to the true enjoyment of life, and to the comforts arising from a blessed hope of immortality. Though such may be called to drink of affliction's bitter cup, yet this motto will never be lost sight of, "Never despair." A person having this organ small is prone to despondency. He never takes cheering views of the future, and is surprised when anything lucky occurs. People of this turn of mind are seldom disappointed, which is the only good that ever results from moderate Hope. This organ leads to the belief in the future attainment of the other organs' desire. Thus Acquisitiveness joined to large Hope will prompt the individual to expect to become rich—to large Love of Approbation will expect to rise to distinction. If Hope be large and Cautiousness small, the person will be gay, careless, and regardless for the future. Hope supplies him with everything desirable without suggesting the difficulty of attainment. This combination leads mercantile men to rash speculations. Advantages are magnified and difficulties not calculated. If such men have low Conscientiousness, they are great promisers, and will do anything required of them in some three

or four months' hence; but when the time comes, their promises are unredeemed, and they as readily promise again, and will go on promising, if you will allow them, to all eternity.

Charles the Tenth of Sweden must have possessed large Hope and Firmness. Hope was Napoleon's "star," and led him on like an *ignis fatuus*, first to an empire, then to ruin. It was Hope, Combativeness, and Self-esteem, which dictated the remark of Julius Cæsar to the fisherman when the storm threatened them with destruction: "Fear not, you carry Cæsar and his fortunes." Hope is the "good angel" which hovers around the couch of the pious: it holds out eternal felicity, and frequently makes death a pleasure. But the Christian religion does not produce this sentiment; it is only adapted to it: for the superstitious savage also has the same feeling, although it has not been directed by revelation, where the "longing after immortality" will be realised, as thus expressed by Pope:—

> "Lo! the poor Indian, whose untutor'd mind
> Sees God in clouds, or hears him in the wind;
> His soul proud science never taught to stray
> Far as the solar walk or milky way.
> Yet simple nature to his hope has given,
> Behind the cloud-capt hill, an humbler heaven;
> Some safer world, in depth of woods embraced,
> Some happier island in the watery waste,
> Where slaves once more their native land behold,
> No fiends torment, no Christians thirst for gold."

In the young, Hope prompts them to plan with reference to futurity—to look forward with bright anticipations of happiness.

Those who commit suicide have this organ small. To them the future holds out nothing to make life worth preserving. "On horror's head, horrors accumulate," till nature sinks in despair beneath the intolerable load, and they rush into the arms of death in a frenzy of desperation.

The most melancholy people I have met with have been highly intellectual, and they had the gift of shewing that they were the most unfortunate beings in the world, and would attempt to prove that the miseries of the past were a sure data from which to infer the misfortunes of the future, and with the poet exclaim—

"Melancholy is a fearful grief—
What is it but the telescope of truth?
Which strips the distance of its phantasies,
And brings out life in utter nakedness,
Making the cold reality too real."

When Hope is large, it inspires the mind with dreams of future glory and happiness: the poet thus describes it—

"O Hope, sweet flatterer, whose delusive touch
Sheds on the afflicted mind the balm of comfort,
Relieves the load of poverty, sustains
The captive bending 'neath the weight of chains."

21. IMITATION.

This organ is situated on each side of Benevolence. To ascertain its size correctly, mark the distances above the centre of ossification of the frontal bone. When small, the head slopes suddenly down from Benevolence.

The first intimation of this organ Dr Gall received from the head of a friend who had great imitative power. In him the part of the head at the seat of imitation was largely developed. Gall on noticing this immediately went to the Institution for the Deaf and Dumb to examine a boy admitted six weeks before, who had attracted notice by his amazing talents for mimicry. A little play was performed at the institution, in which he so perfectly imitated the gestures, gait, and looks of the director, inspector, physician, surgeon, and some women of the establishment, that it was impossible to mistake them. He found the organ as fully developed in this boy as in his friend.

This organ is found large in all who are successful in the art of mimicry. It is essential to theatrical performers, and was very large in Garrick, Foote, and Mathews. Although it is a chief ingredient in the talent for acting, in good acting much more is required. Some of the lower animals are well endowed with imitation. The monkey, the parrot, the bullfinch, the starling, and mocking-bird, are striking examples of this faculty. I have kept starlings, parrots, bullfinches, and mocking-birds, and have devoted much attention to their imitative talent. I have now a starling which I got before it

was fledged. It plays about the yard and house, and is perfectly tame. It talks with great vivacity, and imitates sounds with remarkable correctness, such as the peculiar noise produced in winding up the clock, the ringing of the bell, and the sawing of wood, the grinding of coffee, the songs of the lark, the thrush, and the linnet. It also whistles airs and marches. It is about seven years old, and it now learns new imitations with as much facility as it did when six months old. I have frequently been astonished that people should pay such large sums of money for parrots, while the starling is little noticed; its powers of imitation are equal and in some respects superior to those of the parrot, and it is more amusing and interesting. The natural note of the starling is disagreeable, while that of the mocking-bird is musical and solemn. The imitative talent of the mocking-bird is very extraordinary: it imitates the notes of every other singing-bird as well as every bird of prey so exactly as to deceive the very kinds it attempts to mock. It is likewise very playful, and finds amusement in decoying smaller birds near it by mimicking their notes and calls, and then frightens them away by imitating the screams of such birds of prey as they most dread.

In children this organ is particularly active; hence the importance of surrounding them with associates, and setting them examples, worthy of imitation. The sphere of activity of this faculty is so very extensive, that were we to enlarge on the several portions of it, and give directions for its education in all the combinations of which it is capable, it would require a volume of itself. Almost all the actions of life require its exercise.

22. MARVELLOUSNESS. (Old No. 18.)

This organ is situated in front of Hope, between Imitation and Ideality.

Dr Gall observed that individuals pretended to be visited by apparitions of persons dead or absent, and to hold conversations with them. "Are they impostors," said he, "or does this depend on cerebral organisation?"

He studied the history of men remarkable for this quality —such as Swedenborg, Tasso, and Socrates. He examined and compared the heads of others, and found a prominence between Ideality and Imitation. Whenever an individual fell

in his way of the credulous class, he examined his head, and found the disposition invariably associated with this development. It is the foundation of curiosity and credulity, admiration and astonishment. This sentiment has been a marked feature in mankind in every age, both among savages and civilised nations. In every age man has been led by credulity and superstition. The founders of all nations have had a fabulous origin ascribed to them, and in all countries miraculous traditions and marvellous stories occur in ample abundance. Many believe in dreams, sorcery, magic, astrology, in the mystic influence of spirits and angels. Some are disposed to have visions, to see ghosts, demons, and phantoms. This sentiment gives credence to the true as well as to the false prophet, aids superstition, and is essential to faith and refined religion, and it contributes more to religious faith than veneration. Some are amused with tales of fiction and miraculous occurrences, and cannot be led to understand that the whole of nature is regulated by immutable laws. Others, with a proper development of this organ, and an enlightened intellect, see the wonderful wisdom and glory of God in the harmony with which the atoms and the aggregate of nature are regulated. To the undue influence of this organ may be attributed the success of religious impostors, who succeed in imposing themselves upon the public as supernatural personages; and, in proportion to the marvellous extravagance in which they clothe their doctrine, does their influence extend over those in whom this faculty predominates.

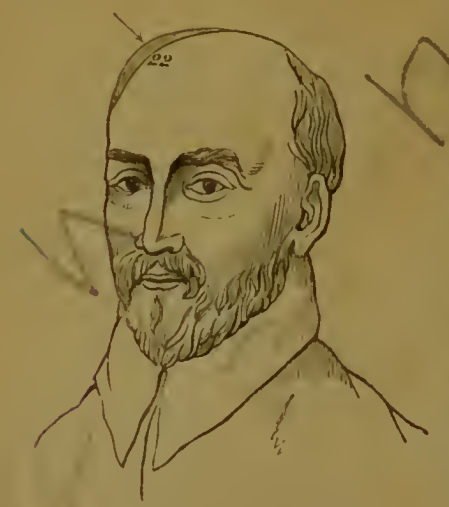


Diagram 55.—Tasso.
Large Marvellousness and Ideality.

The legislators of antiquity made use of this faculty to enforce and confirm their laws. They spoke of God and

angels, or of supernatural powers. The introduction of ghosts, transformations, and supernatural events, in dramatic representations, proclaims the activity of this faculty, both in the author, and in the public by whom such exhibitions are relished and sought after.

Diagram 56.—Thomas Paine. Marvellousness Small.

The organ is particularly large in the portraits of Baron Swedenborg, who believed himself called upon to reveal the most hidden mysteries of the spiritual world. "In 1743, it pleased the Lord," said he, "to manifest Himself to me, and appear before me, to give me a knowledge of the spirit-world, and place me in communication with angels and spirits, and this power has continued with me to the present day."

The spirit-rapping delusion of our own time is one of those sympathetic infatuations that infect a certain class of minds. I have made a study of a large number of these people, and found the types of their heads as strikingly marked, as those who believe in ghosts, omens, fortune-telling, and the delusions of religious impostors. In both England and America, numbers have been at considerable trouble to convince me of the truth of spirit-rapping; but as yet I have not been able to come to any other conclusion than that they are victims of

delusion. The records of history bear ample testimony of the fact, that, in all ages, a certain class of minds have been the willing dupes of superstition and imposture.

Persons who are small in this organ shew a want of sensibility to all that is elevated above the usual routine of affairs. Everything must be made evident to the senses. They have little or no faith in things spiritual, and disregard everything of a marvellous and supernatural character.

This organ is very active in children, and nothing is more remarkable than the pleasure that they manifest in everything that is marvellous and new. It urges to discover what is not known or understood; hence, the wisdom of its early activity, when all knowledge is to be acquired. It prompts children to rely with perfect confidence in the statements of their parents, and to believe the most extraordinary things on their bare statement. Hence the eagerness with which they will listen to novelties—to whatever is new, surprising, and marvellous. Injudicious parents, domestics, and associates, are pleased with the excitement of this organ in themselves and others, and frequently carry it to improper lengths, by the narration to children of supernatural stories of fairies, witches, ghosts, &c. This cannot be too severely reprehended, as it is fraught with consequences often very injurious, and sometimes calamitous. I frequently meet with persons at mature age, and beyond middle life, who have not overcome the injuries they sustained in the nursery, though they possessed good natural understandings, and which had been carefully cultivated. It is the activity of this organ that produces the belief in omens, signs, lucky and unlucky days, dreams, &c., and to its combined activity, and that of Cautiousness, may be attributed that undefinable dread which some persons suffer in darkness, burial-grounds, and the death-chamber. It might be supposed, in such cases, that the intellect was unenlightened; but such is not always the case. The intellect no doubt was unenlightened when these feelings acquired the dominion; but when once acquired, it is with the greatest difficulty that they can be overcome, even after the understanding is convinced that the terror is the result of injudicious treatment when young. This organ should always be placed under the instruction and guidance of enlightened intellect, or serious and dangerous consequences may be expected from improper excitement. For this reason it should never in childhood be

excited, except in the relation of what combines truth with novelty. One ignorant, superstitious nursery-maid—one teacher who understands no mode of governing but by fear—one associate or acquaintance, who has been subject to the evil influence of such domestics, or such a teacher—or one book of an improper character—may inflict an injury that it will be impossible subsequently to repair.

The importance of this faculty to man cannot be overrated; but an excessive or misdirected activity is at all times to be dreaded, as it leads to delusion, and the individuals are ever ready to become the victims of superstition. There is a large class of persons, both men and women, who place implicit faith in "fortune-tellers," and "wise men," and solicit their assistance. Harrison, the Leeds "Wizard," whom Dove consulted regarding the death of his wife, is a case in point. This man is now undergoing the penalties of the law for his brutal and criminal conduct. A man of this type would readily work upon a poor miserable sensual idiot like Dove, whose moral and reflective powers were extremely low, and the propensities excessively large. The strange influence that this "Wizard," maintained over his dupe, is not by any means a solitary instance of the predominance thus obtained over the weak and credulous. In all our large towns there are "fortune-tellers," and "wise-men," who for a consideration profess by virtue of a pack of playing-cards, the twelve signs of the zodiac, and certain geometrical figures, and a solid piece of glass of the shape of an egg, to discover lost or stolen articles, and predict events, and assist by supernatural means women to obtain husbands and men wives. For many years, I have made this class of impostors, both men and women, a study, and, so far as my experience goes, I have found them all very deficient in the moral region, but particularly Conscientiousness. Self-assurance, low cunning, and a practical knowledge of the credulity and weakness of a certain class of people, and how to play upon them, were the prominent features of their character. I have been frequently successful in leading them to unveil the mystery of their craft; and have been both amused and astonished at their unblushing effrontery, as they revealed the tricks they adopted to work on the feelings of the credulous and superstitious; and they would often exclaim, in great glee, as if in self-approval of their skill in the management of their dupes by their methods of villany, "Well, you see, sir,

people are fond of being humbugged, and there is more or less of it in every trade and profession, and I do not see any harm in one trying to make an honest living, if people are willing to pay me for my knowledge." When I have remarked to them, that they had confessed to me that what they did, and

Diagram 57.

James Tunnicliffe, the witch doctor, from a sketch made at his trial. This is a good specimen of the wizard type; it indicates all that is grovelling.

told the people was all "gammon," they would frequently reply, "So it was, and they like it better for that, and pay more freely for it." These are the kind of reasons by which those wise men and women justify their conduct.

The belief in charms has a potent influence with many. The old belief that a horseshoe on the door would prevent the entrance of witchcraft into the house—though now rarely seen in its original position—is still found clinging to the stable-door; and the rustics would tell you, that to remove the horseshoe from the door would bring ill-luck to the animals.

But superstition is not confined to those remote districts in the provinces where traditions are venerated and credulity becomes faith. We meet with it daily in the hard, practical, enterprising world—not always among the uneducated and vulgar (for whom whatever is mysterious has always a charm), but amidst competence and refinement. The flight of birds, the drinking of chickens, and the stumbling against a stone, were all ominous signs to the Romans; but they were not more mindful of omens than large numbers are now. We have met persons of intelligence and piety to whom the calamity of having to return home for some article forgotten would be a source of disquiet for the rest of the day, and who would go far out of their way to avoid meeting a funeral procession. If such little incidents as these could really exercise any influence over our fortunes, what an unhappy wretch must he be who never heard of them!—he would be continually incurring their penalty.

If we were reading an account of some other country than our own, of the manners and customs of its people, and were told, among other superstitions, that nurses would not allow the nails of infants to be cut before they were twelve months old, as it would induce them to be light-fingured, or that mothers would not amuse their young children with the reflection of their faces in a mirror, as it would render their time of teething difficult and painful, we should perhaps be inclined to smile at such absurd and idle tales; yet these same notions are prevalent in our nurseries. It is held by many worthy matrons to be fearfully ominous of evil to carry an infant down stairs on its first introduction to the world, as they trace to that fatal act the forerunner of a downward course in the child's future life; whilst, reversing the journey, their destiny is changed, and prosperity may be anticipated. But what are those unhappy infants to do who are born in garrets? If this were really to be credited, the safest place for a birth-chamber would be the cellar, and the little one's progress towards worldly happiness might be then in proportion to the number of steps it ascended.

Why is Friday an unlucky day? The sun shines, and all things in nature discharge their several functions equally on that as on any other; but the belief in its ominous character is widely disseminated and only too firmly established. According to popular notions, luck appears as difficult a power

to propitiate as it is capricious in its modes of worship. Those who are slaves to these idle and irreligious fancies make for themselves as continual torments as the wretched hypochondriac who dares not move a limb for fear of breaking to pieces. Those who weaken their energies, and render their brains morbidly sensitive by such folly, must be content to leave enterprise, progress, dignity, and honour to those whose onward march and self-reliance are not to be retarded or destroyed by feeble credulity or unmanly superstition. That there are circumstances that arise out of the nature of things which affect our position, favourably or otherwise, no one can deny. But let us search into the history of men's lives, and those whom the world call fortunate we shall find to be the enterprising, watchful, and prudent, who have done for themselves what the unfortunate have been waiting for *luck* to do for them; they have walked erect to prosperity and happiness, aided and guided, not by the guardianship of favourable omens, but by the genius of energy, industry, prudence, indomitable will, and self-reliance.

The natural language of this organ gives a peculiar expression to the face. The mouth gaping open, expressive of awe or wonder, the eyes turned up, the hands elevated, and the whole body more or less thrown into an attitude of disorder foreign to the calm regularity which results from reflection. It imparts a certain wild expression to the look, which becomes habitual to those constantly under its influence.

23. HUMOROUSNESS. (Old No. 20.)

This organ is situated by the side of Causality, and immediately before Ideality. Dr Gall says that the best idea he can give of its functions is to say, that it is the distinguishing faculty of Rabelais, Cervantes, Boileau, Racine, Swift, Sterne, and Voltaire. When excessively developed it is attended with the disposition to view things in a ludicrous light.

This organ produces great amusement, and a love for fun and drollery, and a disposition to say humorous things on all occasions, without regard to time or place. Rabelais joked on his death-bed, and Sir Thomas More on the scaffold. It was large in the Rev. Sydney Smith, and is strongly marked in the head of Mr Charles Dickens.

Mr Dickens is endowed with natural talents that seldom fall to the lot of one individual. He possesses in a remark-

Diagram 58.—Mr Charles Dickens.

Humorousness, Ideality, Imitation, Individuality, Form, Size, Eventuality, and Benevolence—all large.

able degree the talents of the novelist, the artist, the humorist, the poet, the actor, and the moral philosopher; and his peculiar knowledge of the natural history of human nature is extraordinary, as all his characters in his various works are drawn with the master-power of genius, and are in strict conformity with the laws which govern the fitness of things, whether mentally, morally, or physically.

When this organ is small, the person has a natural dislike to drollery, and considers those who deal in it buffoons. He hates absurdity and everything that does not accord with his notions of common sense.

Satire is a combination of this organ and Destructiveness; secretive humour gives a slyness and dryness to humorous remarks.

Wit is said to consist of any form of intellectual conception imbued with the sentiment of humour; and the best species of humour is that which is well-seasoned with wit—striking instances of which are exhibited in the writings of Dickens and Thackeray. Some persons are remarkably acute in making apt comparisons, without any intention of exciting a humorous feeling in others, and are annoyed at the laugh they have created by their witty comparisons. A witty remark is witty all over the world, while what is humorous from one man may be quite the reverse from another. "The School for Scandal" is remarkable for wit; "She Stoops to Conquer" is remarkable for humour. Wit appears to be a perception of the just relation to the subject or matter in hand, and humour a perception of the ludicrous arising from incongruity. I meet with many persons who cannot perceive any point in the witty remarks in "Punch," yet they have a perfect relish for burlesque and broad humour. Locke describes wit as consisting "in assembling and putting together with quickness ideas in which can be found resemblance and congruity." The organ of Humorousness views things in a ludicrous light. It may do so without producing laughter, because laughter may be produced without this organ.

The agreeable gratification of the various organs produce pleasurable feelings which are frequently manifested by laughter. I have seen those in whom Acquisitiveness is large, on being suddenly presented with money, burst into laughter; and those with large Destructiveness laugh on seeing persons injured; others laugh when praised, from gratified Love of Approbation. We see the mother laugh when playing with her child; and how often do we see old friends laugh most heartily on accidentally meeting with each other! I know many persons, both ladies and gentlemen, who have the organ of Humorousness large, and can put things in the most ludicrous light with perfect gravity, while all about them are convulsed with laughter. In them not only is this organ large, but Secretiveness and Imitation also.

24. IDEALITY. (Old No. 19.)

This organ is on the side of the head above the temples. Above it are Marvellousness and Hope. To correctly estimate its size we must be guided by the height and width of

the head in this region, above the horizontal line drawn from the centre of ossification of the frontal bone. Many heads are wide at the temples who are small in Ideality. Large Acquisitiveness and a thick temple muscle are frequently

Diagram 50.—M. Paul Delaroche.
Large Ideality, Form, Size, Individuality, and Imitation.

mistaken for Ideality. Hare, the murderer, was very large in this region; and Sir W. Hamilton and Dr Stone noticed this, and manifested great glee at having discovered, as they fancied, large Ideality in such a notorious villain. The opponents of Phrenology generally take little trouble to be correct, and seem to think the more they blunder the worse it is for Phrenology.

The function of Ideality is to produce the feeling of beauty and perfection; to elevate and imbue every idea conceived by the mind to the height of sublimity. It seems indispensable to poets; and the most distinguished of them have possessed

large developments of it, as in Tasso, Milton, Shakspeare, Wordsworth, Byron, &c. It inspires with enthusiasm, and prompts to embellishment and splendid conceptions. It must be possessed by the painter, sculptor, and all who cultivate the fine arts. A good endowment of it elevates and expands the other feelings and conceptions, directs them to higher objects than those which would be sufficient to gratify themselves, and thus gives a constant tendency to, and capacity for refinement. A great deficiency of it leaves the mind in a state of homeliness or simplicity, varying its appearances according to the other faculties which predominate in the individual. The organ is larger in civilised than in savage nations; in the European, for example, than in the Negro, American Indian, and New Hollander. It is a remarkable fact that Ideality is almost invariably deficient in low, debased criminals.

This organ distinguishes man from the lower animals as much, and perhaps more, than any other. He not only continues to accumulate knowledge, and to improve in the skill and beauty of his performances from infancy to manhood, but from age to age he is capable of progressive improvement. Let mankind, then, be trained to have an eye for the beauties of nature, and to a knowledge of the fitness of things throughout creation, and to understand that at every step they take there is a rich feast in the contemplation of mightier and more beautiful things than was ever centred in the palace of the monarch or hung on the walls of the Society of Arts. What painting equals the plumage of the birds, the foliage of the trees? What is there in man's productions that is not copied from nature? Yet the majority of men neglect this fertile source of knowledge and highest of enjoyments, and devote their lives to the sordid gratification of the lowest feelings of their nature. When the love of the beautiful and the desire of perfection in all things are rightly developed and directed, the world is seen and regarded with totally different feelings than when blinded to the beauties which everywhere surround us. Did governments understand their own interests, and that of suffering humanity, their unceasing efforts would be to direct the development of the highest elements of humanity in all, knowing that it is the only way by which to really elevate the governed from refractory beings to thinking men, and that social institutions can be ameliorated only in

proportion to the general elevation of the moral and intellectual character.

When Ideality is very large, and the intellect only moderate, the manifestations will be frequently eccentric and ridiculous, and especially so, if combined with large Sublimity, Love of Approbation, and Hope. Such persons are ever attempting more than they can perform. Their undertakings must be on such a large and splendid scale that they cannot be realised, their ideas being like brilliant bubbles, which burst while coming into existence. If we read their compositions, we are entertained with a pompous array of splendid nothings, and their public discourses are mere

"Sound and fury, signifying nothing."

Their dress and manners proclaim a fantastical disposition, and every act is accompanied with a flourish.

When Ideality and Marvellousness are very large in children, without the greatest prudence and care on the part of their parents, the reins will be given to rampant fancy, and they will delight to revel in scenes of fiction and romance. They may shew a passion for poetry even though with little or no talent to make it. Such children should be carefully trained and instructed to be satisfied with things as they are in real life, and not led to view inanimate nature as possessing life and consciousness, of which all its varieties and changes are supposed to be the result. The seasons of the year, day and night, echoes and winds, are personified by imagination, and all nature crowded with the fabulous beings to which the wild fancy of poets have given birth.

Ideality gives taste in furniture and dress, and elegance in general, and is pleased with the human form attired in that in which grace, utility, and beauty combine. We frequently see persons of low birth whose talents and industry have raised them to wealth, and they manifest susceptibility of refinement in manners, habits, and sentiments, in proportion to the development of this organ, and those of Imitation and Love of Approbation. If these qualities are low, they stick to their primitive condition through life.

25. SUBLIMITY.

This organ is situated immediately behind Ideality, and when large there is great width and height above the horizontal line, as in Ideality. It will be remembered that the function of Ideality produces the feeling for the beautiful, the lovely, and perfection. The function of Sublimity produces the feeling for the vast, the illimitable, and omnipotent, and derives pleasure from mountain scenery, tempests, vast and magnificent prospects.

I meet with persons to whom the poetry of Milton affords the highest pleasure—and they cannot bear to read any other kind. In them I have found this organ large, and Ideality only moderate. I meet with others who have the most intense love for delicate and refined poetry, and who cannot bear Milton, and in them I have found Ideality large and Sublimity deficient.

THE NERVES OF THE EXTERNAL SENSES.

By means of these nerves the mind is brought in direct relation with the external world, and they are the inlets of all impressions from without. They have been limited to five, namely, Feeling or Touch, Taste, Smell, Hearing, and Sight: but Sir Charles Bell has shewn that certain nerves are distributed to the muscles, and that they constitute the sixth sense, that of mechanical resistance. These nerves are distributed over the muscles, and are connected to the brain by the nerves of motion. It was supposed that the nerves of motion were simple, but Sir Charles Bell has demonstrated that each is composed of two nerves bound up in the same sheath, but serving different purposes. One, called the Motor Nerve, transmits from the brain to the muscles the nervous stimulus necessary to produce the desired contraction and motion; while the other, the nerve of the sense of mechanical resistance, gives the mind and brain information as to the state of the muscle whose contraction is desired; thus enabling the brain to send to it the exact amount of nervous stimulus necessary for accomplishing the desired end. The common opinion is correct, that all our knowledge concerning the objects by which we are surrounded is obtained through the

medium of the senses. If an individual were born without any of these senses, he would be no higher than a vegetable as regards intelligence; though all the other parts of his constitution were perfect, he would act without intelligence. Even when one of the senses is wanting, or lost, the unfortunate individual is deprived of the power of receiving information through that channel; and in the pathetic language of Milton, "Wisdom through *one* entrance quite shut out."

Order II.—INTELLECTUAL FACULTIES.

Genus 1.—THE PERCEPTIVE, OR KNOWING FACULTIES.

Intellectual Faculties, which take cognizance of the existence of external objects and their physical qualities as transmitted through the nerves of the external senses.

The Perceptive or Observing Faculties occupy the lower, the Reflective Faculties the higher portions of the forehead. On account of the smallness of the perceptive organs, many say that it is impossible to observe them. These persons would do well to remember the difference between difficulty and impossibility. The geometrical laws that govern beauty are definite; and although a practical knowledge of them is difficult to acquire, yet the sculptor, by slow degrees, discovers that when certain geometrical quantities are placed in correct relation to each other, a beautiful face or figure can invariably be produced. When the sculptor has thus determined the quantities that constitute a beautiful face, he has then a rule or a law by which to work and judge, and he is able to detect in a face or figure any part that is not in strict harmony with the law of quantity that governs beauty. So it is with the configuration of the head. In the degree that a head verges from those quantities that are required to compose a perfect head, the divergence from harmony is as readily detected as it is in the face by the sculptor. There is obvious reasons for the organs of the intellect being small: when an organ is under excitement the blood rushes to it. The excitement of the large organs of the feelings constitute passion. Now, if the intellectual organs had been equally large with

those of the feelings, intellectual passion probably would have been the result, instead of the calm, cool observation and reflection of our present condition. To ascertain the size of the intellectual organs is a matter of great importance. I have before pointed out the rule by which to estimate the size of the anterior lobe of the brain, which constitutes the organs of the intellect. The anterior lobe rests on the superorbital plate, and terminates at its posterior edge. To ascertain the lateral or side depth of the anterior lobe, draw a vertical line from the centre of the zygomatic arch, as seen on Diagram 13. All before the vertical line is the seat of intellect. When you have a skull before you, nothing can be more easy than to determine the point from which to draw the vertical line. In the living head it is not more difficult. First place the head in a position, so that the axis of the eye is parallel with the horizon, then with the front of the fingers determine the centre of the zygomatic arch, from which draw upwards along the side of the head the vertical line: then ascertain the breadth and the height from the eyebrow to the upper edge of Causality; and mark whether the perceptive organs or the reflectives are most developed; the perceptives give the power of observation, the other of reflection.

26. INDIVIDUALITY. (Old No. 22.)

This organ is situated at the lower part of the forehead, immediately above the top of the nose. When large it produces breadth, projection, and descent between the eye-brows. When small the eyebrows approach closely and in a horizontal line. The cavity called the frontal sinus rises over this organ, and extends in some heads over Form, Size, Weight, and Locality. Before twelve years old this cavity does not exist. To distinguish between external appearances produced by a large development of the frontal sinus and those indicating large development of organs:—in the first they present an abrupt and ridgy development; in the second they present a rounder swell, and it follows the direction of the organs marked out on the busts.

This faculty gives us the notion of substance, and forms the class of ideas represented by substantive nouns: as tree, man, house, horse, bird, &c. It gives aptitude for observing and remembering objects, and the capacity for detail in regard to

objects that exist; and, therefore, is necessary in the natural sciences—as Geology, Botany, Zoology, &c. The ancient physiognomists remarked, that their great men were full at the top of the nose, and all their busts and portraits that have come down to us shew them to have been large in Individuality. I have never yet seen a great general, mechanic, or naturalist, who was small in this organ.

Authors with this faculty large, excel in individualisation: it is particularly prominent in the head of Dickens; and his persons are real, not only as vulgar parlance has it to the tips of their fingers, but to the very garments and appendages. The memorable umbrella of Mrs Gamp is a part of herself.

It was large in Defoe, which is shewn in his Robinson Crusoe. I find it large in great actors. In Edmund Kean it was particularly large; hence his great success in giving that bold prominence to many of the characters of Shakspeare. It is also very large in Mr Barry Sullivan—a cast of whose head I took some time ago—and his talents as an actor are of a very high order. His personifications of Hamlet, and many other characters, far surpass those of any other actor I have seen, as being more truthful to nature in detail.

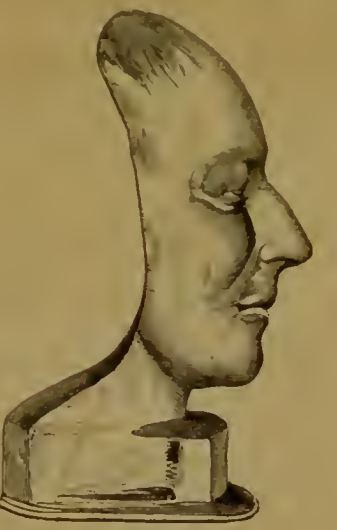


Diagram 60.
Edmund Kean, after death.

There is a class of persons who manifest great cleverness in remembering what they see; nothing escapes them; but they have no aptitude for reasoning upon the knowledge they possess, and are very frequently shallow, owing to their being small in the reflective faculties. A man who has Individuality and good reflective powers, combined with an active temperament, will be an acute thinker. It is thought by some that a retreating forehead is a sign that a man is foolish; but

this is a mistake. Persons frequently come under my notice with retreating foreheads, and yet the reflective powers are large. The retreat of the forehead in such cases is owing to the perceptive organs being extremely large; and I find the lateral depth of the anterior lobe in many such cases, from Individuality to the vertical line from the centre of zygomatic arch, to register 3 inches on the phreno-physiometer, and from the same line to Comparison, $2\frac{6}{10}$, while in many whose foreheads do not at all retreat, the lateral depth at Individuality is only 2 inches, and about the same at Comparison. It is therefore of the greatest importance to particularly attend to these facts in estimating the size of the organs of the intellect.

27. FORM. (Old No. 23.)

This organ is situated on each side of the Cristigalli—a small projection behind the top of the nose. When large it gives width between the eyes, as may be seen in artists who are eminent for portraiture. When deficient, the width across the nose from eye to eye is small. By the lateral depth, and the distance between the eyes, we judge of the size of this organ.

Form is the organ which takes cognizance of configuration generally. It is essential to portrait painters, and greatly aids the naturalist: to it and Individuality, Cuvier owed much of his success as a comparative anatomist. The figure of an animal or of a bone never left his mind, but served him ever after for the purpose of comparison. Every fact which he obtained became linked with every other fact, and he was thus enabled to make his astonishing discoveries in osteology. Form is very large in the Chinese, and this seems to explain what has appeared so puzzling with regard to their written language. We produce all our words by the combination of twenty-six letters, while they have almost a separate character for every word, which renders their language so difficult of attainment to Europeans. The difference in people is very great in their power of perceiving and remembering form. One man from taking a glance at an object will sketch it accurately; another could not give a correct representation however long he laboured. It aids the architect to produce noble designs, and the milliners, mantua-makers, and tailors

to invent patterns. It will be found large in most celebrated painters, sculptors, and natural historians. Those artists who, in spite of great natural talents, fail in making correct likenesses, will be found relatively smaller in this organ than the other artistical faculties.

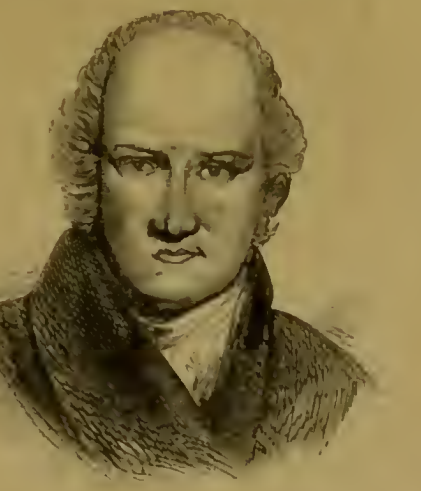


Diagram 61.—Benjamin West.
Large Imitation, Form, Size, and Locality.

We frequently meet with persons so small in this organ, that they experience the greatest difficulty in recognising even their most intimate friends when they accidentally meet them in the street. I am acquainted with a gentleman who is so extremely small in Form and Individuality that he has the greatest difficulty in recognising his wife and children, and passes them in the street without knowing them, but he readily recognises them by their voices when they speak to him.

28. SIZE. (Old No. 24.)

This organ is situated at the inner corner of the eye, on the side of Individuality. The faculty of distinguishing size differs from that of distinguishing form. It gives the idea of space, and the dimensions of objects and of the space which they occupy. It also takes cognizance of the law of the proportion of distance, or perspective, and perceives extension, distance, space, and magnitude of bodies, which are recognised by Individuality. As the perception of perspective depends on Size principally, it is accordingly necessary in landscape painting. Some artists are so deficient in this organ that they cannot draw in perspective, and the proportions in their pictures are always more or less faulty. It gives what is commonly called a good eye for estimating correctly distance and

proportion in general. It is a most important faculty to geometricians, civil and military engineers, artists, architects, land-surveyors, and generals. In games, such as billiards, bowls, &c., it is of great importance in assisting to give precision and skill in judging of distance.

This faculty in a strong or weak degree may be readily observed among all classes of society, but particularly in the workshops of those branches of handicraft trades in which correctness of proportion is of the first importance. One man can draw a circle, and carry, as the phrase is, the size and proportions of the thing in his eye, while another man, after a most careful measuring of every part of an object, fails in making one the same size. The fact is, although, to some extent, rules may aid or even modify a natural aptitude, yet they never can fully compensate for deficiency of natural power. Individuality, Form, and Size are the most essential organs to make a good practical phrenologist, and without these organs are large and combined with good analytical and synthetical talents, and an active temperament, much blundering may be expected in the predication of the natural powers of an individual. I have frequently met with people who, in great triumph, have informed me that there can be no truth in Phrenology, as a professor of the science had told them that such an organ was large or small, just as the case might be, and all their friends said that such was not the fact; therefore Phrenology was false. Certainly, if "the professor of the science" had made the statements which they named, his deductions were drawn from fancy, not from fact.

Mistakes made by individuals who call themselves professors of practical Phrenology, no more militate against the science and art of Phrenology than blundering in the execution of a piece of music, by one who styles himself a "professor of music," would militate against the science and art of music.

29. WEIGHT. (Old No. 25.)

This organ is situated about one-third of the extent of the superciliary ridge from the nose. Sometimes the eyebrow is forced up by it, but most frequently it is indicated by a downward depression of the eyebrow in the position of the organ.

This faculty gives the idea of ponderosity of bodies—of mechanical forces and resistance. Bodies may be of all forms,

sizes, and colours, and yet none of these features would imply that one was heavier than the other. It is clear, too, that we have an instinctive faculty which leads us to put forth muscular effort proportionate to the resistance to be overcome. It is probably to this organ that the nerves of mechanical resistance convey the idea of the state of the muscles.

I have found this organ large in those who were good judges of mechanical forces, and in those whose success in artistic and handicraft manipulations depends upon bringing force to bear with skill, precision, and delicacy; such as musical performers, machinists, smiths, rope-dancers, and horsemen. I have found it small in young ladies who cannot acquire precision of touch in performing on the piano and harp. In the heads of skilful pugilists, fencers, equestrians, tumblers, and opera-dancers, I have found it large, as well as in those who excel in archery, skating, and quoits. It is large in children who walk early.

It is particularly large in the mask of Sir Isaac Newton: the falling of the apple attracted the attention of this organ, and led the philosopher into a train of thought, which resulted in developing the true theory of gravitation. If the organ had been small in his head, the falling of the apple would never have excited in his mind such a train of thought. It was very large in Watt, the celebrated engineer; in Stephenson, the inventor of the superior locomotive engine; and in Brunel, the engineer of the Thames Tunnel.

30. COLOUR. (Old No. 26.)

This organ is situated in the middle of the eyebrow, between the organs of Weight and Order. When large it gives an arched, projecting appearance to the eyebrow. It should be recollected that the organ of which we are now treating is not confined to the superciliary, but extends a short distance above it. Dr Gall discovered it by comparing together the heads of painters distinguished for colouring. In the collection of a fervid amateur of colouring he saw a collection of portraits of both male and female artists, who had distinguished themselves in this department of the art, and in all the region immediately above the middle of the eyebrow was extremely prominent. This organ perceives colours. When it is large, this perception is extremely vivid. There is a love of colours

for their own sake, and a remarkable power of minutely discriminating their nicest shades. Combined with Ideality, it gives a just and delicate perception of colours. When it is small, a difficulty is experienced in perceiving and distinguishing colours, and in appreciating their harmony. Such cases are often met with, and arise from a defective size of this part of the brain. Many people cannot distinguish brown from olive, green from blue, or yellow from orange; while others, though not so defective as this, are unable to perceive harmony or discord in the arrangement or combination of colours. Dr Spurzheim relates a variety of striking instances of deficiency in the organ. There was a gentleman in Dublin fond of drawing, who on one occasion painted a tree red instead of green. A young man, who wished to learn the haberdashery business, in Edinburgh, was so deficient in this organ, that he could scarcely tell the difference between red and yellow. In the celebrated Rubens it was very large, also in the masks of Wilkie.

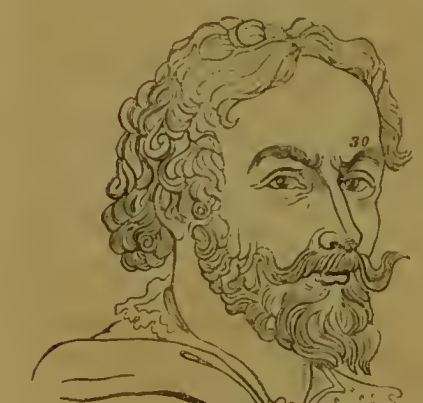


Diagram 62.—Rubens. Colour Large.

When at Chester, in the spring of 1842, three gentlemen called upon me to test Phrenology. I was requested to give my opinion of the natural abilities of one of them. On an inspection of his head I found the talents for drawing very highly developed, and the organ of Colour small. I then remarked that the formation of his head shewed all that was required for drawing, but his perception of colours ought to be very bad. He then said, "Does the formation of my head indicate what you have stated?" to which I replied, "It does." "Then, sir, my head is a remarkable phrenological fact, for what you have stated is perfectly true. I was brought up an artist, but was obliged to abandon it owing to my defect in the perception of colours." Seeing that this was

an interesting case, I requested him to give me, in writing, the particulars, with which he most willingly complied. The following is his own account of himself :—

To Mr F. Bridges.

Chester, *April 16th*, 1842.

Dear Sir,

Agreeably to your request I give you here some account of my experience as to perception of colour, the organs of which are so deficient in my phrenological development.

I have already told you that I was brought up an artist, but it was not until I was nineteen or twenty that my inability to distinguish colours was noticed by myself or others. My studies being for years confined to drawing, and for some time after, my deficiency was attributed entirely to the want of practice and observation, and not to any physical defect. I never experienced any difficulty in making drawings or in studying perspective—my master in perspective saying that I was the aptest pupil he ever had. My pencil-sketches from nature have received great praise from artists in general. In colouring, however, I was quite the reverse, and many years of useless labour were thrown away in my attempting to surmount a difficulty which I attributed only to having adopted that branch of the profession so late. Having at last become convinced, from constant observation, that I did not perceive colours as other persons did, and being fairly embarked in a profession of which I was very fond, and reluctant to quit, I sought to overcome a natural defect by dint of method and observation. You are aware that I in some measure succeeded. The colours I have the most difficulty in distinguishing are red, green, and purple ; yellow and blue I recognise, but various shades of lilac, violet, green, orange, and brown I have difficulty in distinguishing from each other. A bright grass-green always appears to me like scarlet, though, from observation, I am able to know one from the other by looking at them attentively if they are both present, so that I may contrast them ; light pinks I easily confound with grey or lead-colour ; greens and browns I never can distinguish, even side by side. I don't know that I can add anything more concerning this peculiarity that would interest you. The

number of instances in which I have made glaring mistakes might be amusing, but would not establish the fact of my organic defect more certainly than the general account I have given you. With one short anecdote I will conclude. Studying, side by side, at Rome, with a very clever artist and beautiful colourist, I was struck with the ease with which the colours seemed to arrange themselves on the canvas, and the rapidity with which his combinations were produced. I could not help exclaiming, "By Jove, M——, I cannot conceive how the deuce it is you paint!" "By Jove," retorted M——, with a laugh, "it puzzles me infinitely more to understand how you paint!" My colouring was so bad.—Ever, my dear sir, yours truly,

W. Ayrton.

I had the good fortune to meet with another case of small Colour during my stay in Chester. One day I went into the shop of Mr Platt, druggist, and found him talking with a gentleman. On seeing me he said that the gentleman with whom he was talking "was a good case to test Phrenology," and asked "whether I had any objection to examine his head." I informed him that I had not the least objection, and requested the gentleman to take off his hat, which he did without any remark. The first thing that caught my attention was the great deficiency of the organ of Colour, and I at once remarked that he was defective in the perception of colours. He appeared astonished, and said, "Does my head shew that?" And on being informed that it did, he remarked, "Well, it is singular: it is a fact that I am very deficient in the perception of colours." Now, this gentleman was put to the drapery business; but the mistakes that he made with regard to colours were so glaring, and appeared so absurd to those whose perception of colours were good, that he was deemed a fool, and at length obliged to leave the business.

Those who have this organ large take great pleasure in arranging colours in harmonious combinations. It is generally larger in women than in men. It forms one element in the passion for flowers.

GENUS 2.—INTELLECTUAL FACULTIES WHICH TAKE COGNIZANCE OF THE RELATIONS OF EXTERNAL OBJECTS.

31. ORDER. (Old No. 29.)

This organ is situated at the outer part of the eyebrow, between Number and Colour. It produces the instinctive love of method and the proper arrangement of things. Those females in whom it is large manifest great uneasiness at seeing anything out of its proper place or in a state of confusion. When the organ is very large, there is great fastidiousness about the manner in which things are placed, and the order in which they are done; which is frequently the cause of unnecessary and painful inconvenience. Methodical arrangement is not less annoying to those in whom this faculty is feeble, than the want of it is to those in whom it is large.

This organ is confined to physical arrangement, or Order, or method in relation to physical objects. Classification, generalisation, and systematising in science and philosophy, depend on the reflective faculties. Such authors as Cuvier and Linnæus were indebted to Causality and Comparison, and not to Order, for their great power of classification.

The Esquimaux are, by navigators, described as a most filthy, slovenly, and disgusting race; and in them the organ is very small. Persons in whom this faculty is small shew a marked indifference to order and arrangement. Confusion and want of neatness give them no annoyance, and they are apt to be careless in dress, and disorderly in their households.

We meet with people who are extremely small in Order, and who manifest the greatest anxiety to have their dress made in the first fashion of the day. Their large love of Approbation and Imitation must be gratified at any price; and they frequently pay the most outrageous sums for the purchase of gaudy attire and trinkets, with which to gratify their morbid passion for senseless, vain display; and this is prompted by no higher motive than that which induces the savage to decorate his person. The drawers and wardrobes of such persons will be found in the most disgraceful state of disorder; indeed, they are void of system and

arrangement, and their external appearance is the transcript of the tone of their minds: as a rule, I find them shallow in intellect.

Persons in whom this organ is large are apt to be annoyed if everything is not kept in its place; and I have seen many guilty of great rudeness, by rising to adjust some ornament or piece of furniture in a friend's house that was not exactly in its right place. They cannot understand why people are not annoyed at irregularities; and they are frequently the greatest bores to those who have small Order. Servants with small Order cannot see why persons should be annoyed at carelessness and irregularity; and it is impossible to impress on their minds that it is of any importance whether a thing is in its exact place or not. A lady with large Order should never engage a servent with it deficient, or they will be continually dissatisfied with each other.

This organ may be greatly improved by education: and parents and educators should be particularly attentive in giving a proper direction to it as early as possible; because the neglect of the training of this faculty becomes a source of great domestic discomfort.

32. NUMBER. (Old No. 28.)

This organ is situated at the external angle of the eye, and when large swells out the frontal bone at that particular spot. In some instances its size is indicated by an overhanging and drooping appearance at the outer extremity of the eyebrow, as seen in the annexed likeness of Rowland Hill, which represents a large development of the organ, and he is distinguished for great arithmetical talent.

The function connected with this organ gives the power of arithmetical calculation. Common experience has established the fact that great differences exist among individuals in the strength of this faculty. Some men of distinguished talents cannot even master the multiplication-table, and one of the first phrenological and philosophical writers of the present age is so deficient in this faculty as to be unable to add up his own cash-book. But we will let Mr Combe give his own account of his defect. "Arithmetic has always been to me a profound, and to master the multiplication-table an insurmountable, task. I could not tell you how many eight

times nine are without going to work circuitously and reckoning by means of the tens. Yet for seven years I studied arithmetic. This deficiency has been the occasion of much trouble to me. I could understand everything relating to accounts, but had always to employ clerks to perform calculations. This faculty in me is, in fact, idiotic; and the organ is very small. Were my other powers in like condition, I should be totally unfit for the ordinary business of life."

Diagram 63.—Rowland Hill, Secretary to the General Post-Office. Number large, and the general intellect of a very high order. Hence the laws that govern the fitness of things, with relation to the position he holds.

(From a Photograph.)

This organ is large in Mr George Bidder, who has shewn extraordinary talent for mental calculation from a very early age; and at eleven years old he could solve the most complicated questions in algebra more rapidly than the most expert accountant could put the operations down. It was large in Zeriah Colburn, the American calculating boy, and will be

found large in all who are remarkable for their arithmetical ability. It was thought that some calculating boys would have excelled in mathematics, but the result did not correspond with the anticipation. Arithmetic and algebra depend on this organ, but geometry and other of the higher branches of mathematics depend on other faculties. I do not state this as the result of speculation, but of observation. Algebra and arithmetic treat of the proportions of numbers; geometry treats of proportions, properties, and measurement of lines and surfaces, and the three constitute the elements of pure mathematics. In judging of the proportions, properties, and measurements of objects and space, Individuality, Form, Size, Weight, Locality, and Comparison are required, and for judging of the proportions of numbers, Number, Order, and Comparison are the leading faculties. I have met with a large number of excellent mathematicians who were low in the organ of Causality: it appears then that this faculty performs a small part in mathematics, and that a person may be a good mathematician and an indifferent reasoner, and a great reasoner and a poor mathematician. Lord Bacon expresses this opinion—that "the mathematical part, in some men's minds, is good, and the logical is bad; some can reason well in numbers and quantities that cannot reason in words"

I found the organ of Number small in the American Indians; and the American Government have had great difficulty in negociating with them, owing to this defect. In the agreements to pay certain sums of money to the Indians, it has been found impossible to make them comprehend the amount, and great dissatisfaction at times has been the result.

33. EVENTUALITY. (Old No. 30.)

This organ is situated in the centre of the forehead, above Individuality and below Comparison. It is the faculty which takes cognizance of action and change. Individuality concerns itself with what exists; eventuality with what happens. When we say the man runs, the noun springs from Individuality, and the verb from Eventuality.

Dr Gall included this organ and Individuality in what he called the organ of Educatibility; but, from the fact that the upper part was small, and the lower part large, and the reverse, phrenologists were led to observe; and, since the time of Gall,

it has been proved that this portion of the brain performs a distinct function from that marked Individuality, and it has been named Eventuality, which may be called the verb faculty —as Individuality is the noun, and the simple perceptive the adjective faculties.

As soon as any action, or any event whatever, takes place, this faculty takes cognizance of it : such as, the horse gallops —the house falls—the army retreats—the king abdicates : in all these phrases the action done calls up Eventuality. And if we consider all history, whether sacred, political, or social, as well as the history of the sciences, we find that they are records of what has been done to certain existences or nouns. This is a most important faculty, as it not only perceives the events, but remembers them, and keeps them, as it were, in a storehouse, to be called up when required, to gratify the other faculties. It is the foundation of the talent for relating events, narratives, anecdotes, and histories. It is found large in all good historians. Persons who have this organ very large have a great craving to know everything which is going on ; and, with Secretiveness small, and Language large, they have equally as great a craving to divulge it—and are too fond of talking of the affairs of their neighbours. Gossips have, as a rule, small brains, and their moral education has been much neglected. Large-brained persons, generally, despise the paltry habit of retailing all the chit-chat which they hear, and are not likely to become addicted to this dangerous vice. Love of Approbation and Self-esteem are often manifested by gossips, who are always envious, jealous creatures.

Books that abound in incident, such as Don Quixote, Robinson Crusoe, Roderick Random, and Gulliver's Travels, are characterised by great Eventuality. Persons who have this organ strong, remember vividly the occurrences related in books, and are considered clever, in the common meaning of the term ; yet, it may so happen that they are perfectly unable to reason upon the knowledge they have acquired, or turn it to any practical use.

This faculty and Individuality are essential to the chemist to notice substances, and the processes that take place during chemical combinations in conducting successful experiments. This organ is the principal element in the talent for physiology, since that science explains the action and history of organised nature. It is also important to the physician, to enable him

to perceive the morbid action of the constitution, and the operation of the drug which he employs. It also enables him to remember the history of analogous cases in all their minute details; thus enabling him to profit by experience. It prompts him to inquire into the previous history of the patient, so that the reflective power may more correctly judge of the probable causes of his present state, and of the best remedy.

The public speaker is greatly dependent on this faculty and Individuality to furnish facts, and the history of the transactions to which he alludes.

Eventuality is large in historical painters, and in those who can successfully represent objects in action. Hogarth and Sir David Wilkie are good instances of this, and they had the organ large, and all their works represent action most admirably. The painter who is small in the organ, fails to give expression to his portraits, and animation to his scenes.

34. LOCALITY OR DIRECTION. (Old No. 27.)

This organ is situated on each side of Individuality. It enables us to perceive direction, and gives great facility when large of recollecting places and learning geography. It is this faculty, Individuality, and Size, that enable the Indian to travel through the forests with such wonderful accuracy. He keeps a map of the country in his head and a chart of his course. The organ was large in Mungo Park, and he had such a passion for travelling that he left his profession and his native country to penetrate into the interior of Africa. It is large in the busts and portraits of Columbus, Captain Cook, Galileo, and Newton.

Persons largely endowed with Locality, Individuality, and Size are delighted with descriptions of natural scenery, such as are found in the works of Sir Walter Scott; James Fenimore Cooper is without a successful rival in his descriptions of nautical and Indian character. His "Pilot" is an admirable illustration of this faculty. He is represented as steering the vessel among rocks and shoals, through a thousand dangers that seem at every instant to increase in magnitude; but with a firm and decided voice, and calm spirit, he gives each necessary order, and with his own master-power guides the noble ship in safety.

Migratory animals possess this faculty in a higher degree than man. Swallows, pigeons, geese, and many other birds of passage, possess an innate power of direction that has always been a subject of wonder. Dogs have been known to manifest this power in a remarkable degree in tracing their steps homeward for hundreds of miles. We every day observe blind men walking alone and in perfect safety through the most crowded streets, guided in their gloomy path by the mysterious influence of Locality and Size.

35. TIME. (Old No. 31.)

This organ is situated in the middle region of the forehead, on each side of Eventuality. It gives rise to the perception of duration—of the relation in which circumstances stand to each other chronologically. It also gives the perception of measured cadences, and is one source of pleasure in dancing. It is necessary to music and versification.

Many young people who are low in this organ, while learning music find it difficult to play in correct time; and I have known many to abandon the study of music, owing, as they have stated to me, to their inability to learn to play in time. Some years ago, a teacher of music, who resided in Liverpool, named to me several of his pupils, who played with remarkable execution and feeling, but they could not learn to play in time. I asked him the kind of music they played, and being informed that it was of a class that required great skill in time as well as execution, I suggested to him to try those of his pupils who were bad timeists with music of regular time and metre, and slow movements; and I am happy to say, that he has found this simple method wonderfully successful in making good timeists. But I also impressed upon him the importance of selecting those tunes which would afford pleasure to the strongest feelings of each particular pupil, and this he has found to be of great practical advantage in teaching music.

The deaf and dumb frequently manifest this faculty, and they may be taught to dance correctly, by observing the motions of others who beat the time. Some metaphysicians have asserted, that we measure time by the number of ideas which pass through the mind; but this view is evidently incorrect, as the more we are interested in any occupation, the

less clearly do we perceive the lapse of time. Some persons are so highly endowed with this faculty, that they can measure time accurately under all circumstances, and can tell the time even when waking in the night.

Animals manifest a perception of the lapse of time, and I have noticed my own birds and other domestic animals, which have been accustomed to be fed at a partienlar time, or taken ont for sport or exercise, manifest signs when the time had arrived, and even prepare themselves for the accustomed occupation. I have two grey parrots, which are fed at eight o'clock in the morning and four in the afternoon, and they invariably give notice of the time, by calling out "Polly wants her tea," and they distnrb the whole house till they are attended to. Birds in singing keep good time, and horses and dogs have been taught to dance in perfect time. I have a starling and a bullfinch that whistle several tunes in excellent time. I had a dog that was accustomed to fetch milk at a particular time daily, and he most faithfully attended to the time for several years, which was six o'clock in the evening. The can used for this purpose was left in a certain place, and he regularly took it without being commanded, and returned it with the milk to the same place. Indeed, facts to any number could be adduced, in proof that the lower animals have a perception of the lapse of time.

36. TUNE. (Old No. 32.)

This organ is situated between Time and Constructiveness, under and on each side of the temporal ridge. When large the forehead is filled up and rounded off in this region. Gall discovered this organ, by noticing it large in a young girl, who could repeat whatever she heard sung or played, and who recollected whole concerts if she heard them only twice;—and by afterwards examining the heads of all persons distinguished for musical talent to whom he could gain access.

No organ is better established than Tune, but to discriminate its size with accuracy will be found somewhat difficult, except in cases of extreme development or deficiency, and mistakes are frequently made in estimating it.

"This organ," says Mr Combe, "bears the same relation to the ear, which the organ of Colour does to the eye. The ear receives the impression of sounds, and is agreeably or

disagreeably affected; but the ear has no recollection of tones, nor does it judge of their relations; it perceives not the harmony of sounds. Harmony is the agreeable combination of various sounds; melody consists in the succession of simple

Diagram 64.—Handel. Tune large.

sounds. For the proper appreciation of harmony, a larger endowment is required than for that of melody, and in accordance with this, we find the Germans and Italians have the organ large and prefer harmony; the Scotch have it only moderately developed, and prefer melody. Many mistakes occur in relation to this organ, not only from the difficulty of observing it, but from not rightly understanding on what excellence in the musical art depends. Tune gives the perception of melody, but this is only one ingredient in a genius for music. Time is requisite to a just perception of intervals, to the proper appreciation of harmony; Secretiveness and Imitation to produce expression. But in instrumental music, the loudness of tone depends on the momentum with which the chord is struck; the due regulation depends on the organ of Weight. Large Form and Individuality are requisite to enable a musician to read music at sight; Ideality and a fine temperament should be added to give refinement and elevation to

throw over all the glow of inspiration. Such a combination is extremely rare; hence the scarcity of great musical talent."

Those who have a military disposition will be fond of martial music. Destructiveness is roused by rough, and Combativeness by loud and sudden sounds, while Adhesiveness, Philoprogenitiveness, and Benevolence are pleased with soft, gentle, and sweet tones. Those who have a gentle and effeminate disposition will be likely to say, with the poet—

> "I hate the drum's discordant sound,
> Parading round, and round, and round
> To me it talks of ravaged plains,
> And burning towns, and ruin'd swains,
> And mangled limbs, and dying groans,
> And widow's tears, and orphan's moans,
> And all that Misery's hand bestows
> To fill the catalogue of human woes."

We can now understand the meaning of Shakspeare's celebrated passage—

> "The man that has no music in himself,
> Nor is not moved by concord of sweet sounds,
> Is fit for treasons, stratagems, and spoils;
> The motions of his spirit are dull as night,
> And his affections dark as Erebus:
> Let no such man be trusted."

The poet certainly did not mean to be understood as censuring those who cannot judge with accuracy of musical performances; but he who is not *moved* by concord of *sweet* sounds, is low in the social affections and moral sentiments.

Beattie expresses the same idea, when describing

> "A heart that music cannot melt."

Such a person would have a predominance of Alimentativeness, Secretiveness, and Acquisitiveness; he says—

> "He need not woo the Muse; he is her scorn;
> The sophist's rope of cobweb he shall twine;
> Mope o'er the schoolman's peevish page; or mourn,
> And delve for life in Mammon's dirty mine;
> Sneak with the scoundrel fox, or grunt with glutton swine."

This organ is distinctly marked in the nightingale, the thrush, the lark, the linnet, and other song-birds. It is larger in the head of the male singing-birds than in the females, which accounts for the superior power of song of the male. Birds

which do not sing, are not similarly developed: and if we compare the head of the hawk, the crow, &c., with the tribes of songsters, the difference is very striking. I have met persons who would argue, that the inability of birds to sing, was owing to the unsuitable organisation of their throats; but such arguments are of no value, because the whole of Nature is constructed in obedience to the law of the fitness of things, and whenever a talent is bestowed for anything, the animal is endowed with the apparatus for exercising that talent. If the Creator had given the cerebral organisation of the nightingale to the crow, He would also have given it the vocal apparatus for song, as He does nothing in vain. It may be stated in objection to this, that some men have great musical talent, and yet cannot sing for want of a good voice. It must, however, be understood that the chief purpose of the human voice is speech, and man is not, like the nightingale, merely a singing animal.

37. CONSTRUCTIVENESS. (Old No. 9.)

The organ is situated before Acquisitiveness, and behind and above the outer angle of the eye. In the brain it occupies the posterior part of the anterior lobe. Dr Gall discovered it by noticing that men distinguished for mechanical genius were large in the locality of this organ. The temporal muscle covers Constructiveness, and differs in thickness in different persons. Its thickness may be estimated in the living head by feeling at the muscle while the individual moves his lower jaw as in biting.

This organ has hitherto been classed with the lower propensities. The convolution of Constructiveness is in the posterior anterior lobe of the brain. Its function is to construct, which employs mental action. It is one of the mental powers that we possess in common with the lower animals—such as Tune, Time, Individuality, Locality, &c.

The function of this organ produces the desire to construct, or the ability to fashion, by putting materials together, as in buildings and making machines, or by carving out, as in sculpture, modelling, &c., or any of the processes discovered by the other intellectual faculties, as in drawing and painting. It does not invent, but merely fashions or configurates, though it stimulates the other mental powers to invent what will

employ it agreeably in constructing. It takes its direction from the other organs. Combined with large Weight, it leads to machine-making, with Ideality and Form to statuary, with these and Colour to painting.

This organ is of great service to engravers, cabinetmakers, tailors, and dressmakers. Indeed, we see the manifestations of this organ in all situations. The meanest savage constructs a spear or some machine to kill the beast or fish which affords him nourishment. The child makes its paper boat, and fashions a cap or dress for a doll. Some children begin to use the scissors and attempt configuration before they can talk. The manifestation of this organ may be seen in every mechanic's shop. Some men are never at a loss for a tool, and they can turn their hands to anything. Others are so awkward with their hands, that they cannot even mend a pen. Montaigne writes of himself, "I cannot handsomely fold up a letter, nor could ever make a pen, or carve at table worth a pin, or saddle a horse."

A youth should never be put to a trade that requires constructive talent who is small in this organ. Youths are frequently brought to me by their masters and parents. The master complains that the lad is idle and careless, and will not learn his trade. The general complaint of the parent is, that the lad's master is too strict with him, and the lad is put to do anything, and not allowed to learn his trade. Now the fact is, in all these cases I find the constructive talent small; they have not the natural ability to learn the trade to which they have unfortunately been apprenticed. Many confessed that they had tried their best to learn but could not do so, and that the other apprentices laughed at them, and made fun of their bungling way of doing a job.

The constructive power of the lower animals is limited. The bee can construct only a honeycomb, the bird a nest, the beaver a dwelling of a particular form. No tuition can alter the dispositions of these creatures so as to make them build after any other fashion. The constructive talent of man is general in its operations; he works by a thousand different ways, and forms an infinity of distinct objects.

The proper use of this organ is to improve and increase the conveniences of man, and so advance the progression of the whole race. The natural language of this organ may be noticed in persons who have Constructiveness large: when

examining anything which appeals to this faculty, they first place the head a little on one side, and then on the other, while examining the article.

We may notice children when writing, how some will move their heads from side to side, especially when making flourishes: those who keep their heads stiff, will generally write a stiff, formal hand. We have frequently seen schoolmasters rapping the knuckles of boys for moving their heads; they little knew the connexion between the instinctive movement and the dexterity of their pupils.

38. LANGUAGE. (Old No. 33.)

This organ is situated on the back part of the orbitary plates, the bones which form a roof to the eyes and support the anterior lobes of the brain. A large development of this organ is indicated by a prominence or depression of the eyes, which is produced by a portion of the brain which lies at the back part of the orbitary plate pressing it and the eye more or less forward and downward, according to the size of the convolution. When small, the eye is deeply sunk in the skull.

This faculty takes cognisance of artificial signs, by which we represent ideas: the ideas are given by the other faculties, and this gives signs only. Form gives the idea of configuration, as an oval, a circle, or a square. Language supplies the word or sound by which we are enabled to call up the idea in the minds of others.

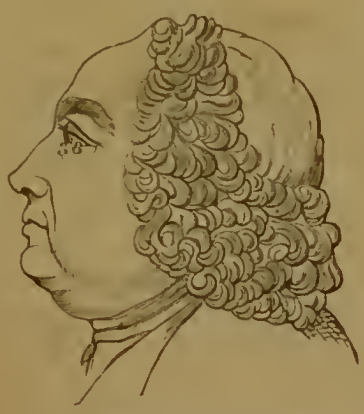


Diagram 65.—Fan Swieten. Language large.

The indefiniteness of terms is much complained of by metaphysical authors: this vagueness arises from the different combinations of the various faculties in different individuals, and men cannot agree in their conceptions of the meaning of words expres-

sive of emotions and judgment, as long as they do not agree in their organisation. Take the word conscientiousness, for instance; the idea attached to it by Lord John Russell will be very different from that attached to it by Palmer. And no definiteness of expression could ever give the one the comprehensiveness of the other. In consequence of the different degree of proportion that individuals possess in certain organs of the brain, definitions expressive of feelings are very differently apprehended. "Mathematical language is definite, because not expressive of feelings and ideas which differ in different individuals, but of precise and determinate proportions of configuration, space, and number. It is utterly impossible, therefore, to frame a philosophical language, like numbers in mathematics, applicable with perfect precision to moral disquisitions. All men agree to use the words justice, charity, and others; but question different persons about the ideas which they attach to these words, and you find that they widely differ."

This faculty gives verbal memory; and persons who have it large readily remember words, and learn by heart with great facility. When language is very large and the general intellect only moderate, it is surprising what a volume of words can be poured forth to express a few ideas, and sometimes no ideas at all. This class of persons have great pleasure in hearing themselves talk, and are rendered uncomfortable if not allowed to indulge in their favourite occupation. If they write, their style is like their speaking, destitute of condensation—they scribble whole pages about nothing.

I frequently meet with men of great talent only moderately endowed with Language, and others whose mental powers are very commonplace who have this organ large. Many persons who are largely endowed with this faculty, and who have an excellent verbal memory, and learn by heart with great readiness, yet make little progress in learning the science of a language.

The size of this organ is but one condition necessary for the acquirement of languages, and not the most important. The verbal memory as far as it goes gives facility of remembering words, but it requires several of the intellectual faculties to understand the science of a language.

Some people when under the influence of drink have an inordinate love to talk, although at other times they are very

taciturn. We frequently observe the same in fever and mania. There have been instances where, from the excitement of the organ during the delirium of fever, a language learned in early life, but afterwards forgotten, has been recalled, so that the person could speak it fluently; only, however, to be forgotten so soon as the excitement caused by the fever had passed away. The manifestation of what is called the "gift of tongues" among the Irvingites and others, depends in part upon the derangement of this organ. That the brain is deranged is sufficiently evident from the appearance of such persons in a paroxysm, the bright, piercing, and restless eyes,

Diagram 66.—Professor Owen. This is the highest type of human head.

the extended and waving arms, the unusually deep, full voice and wild manner, often continue till they fall down exhausted.

Dr Gall relates an anecdote of a man who was one day

presented to Frederick II., endowed with such a memory that he recited by heart a considerable piece which he had never read but once. The same day, Voltaire had to read some verses to the king. Frederick concealed the stranger behind a screen, and when Voltaire had finished reading, he told him that the piece was neither new nor his composition; and made his accomplice appear, who recited it, and maintained that he had himself composed it twenty years before. Let the reader judge of the fury of the irascible Voltaire, and the shouts of the philosopher of Sans Souci.

Some individuals seem to take a pleasure and pride in the use of high-sounding phrases, and, like Goldsmith's "Schoolmaster,"

> "With words of learned length, and thundering sound,
> Amaze the gazing rustics ranged around."

Now, Love of Approbation may prompt them to use such high-sounding phrases; it is large Language which enables them to do it with ease. On the other hand, we see individuals whose gigantic intellects survey with ease the whole circle of the sciences, and yet in a sudden emergency cannot find words to express themselves intelligibly upon the most familiar and ordinary topics.

Genus 3.—REFLECTIVE FACULTIES.

These powers constitute what is called reason. They compare one thing with another, and trace the relation subsisting between effects and their causes.

39. COMPARISON. (Old No. 34.)

This organ is situated in the middle of the upper region of the forehead, immediately above Eventuality. When prominent it gives to this region a rounded fulness. Dr Gall often conversed with a man of learning, possessing much vivacity of mind, who, whenever put to a difficulty in proving rigorously his position, had always recourse to a comparison, and thus escaped at a tangent. He found in his head an eminence in the form of a reversed pyramid in the region of this organ. Subsequent instances fully established this organ.

Comparison discovers analogies, resemblances, and differences. We have an organ which compares tunes; one which compares colours: it may be asked, what need is there, then, of a distinct organ of Comparison? It must be understood that Comparison compares things of different natures, and combines the result of the other faculties harmoniously. Almost every object or subject which can occupy the mind belongs to a class to which it bears more or less analogy; and, it is the function of this faculty to compare all our perceptions together, and trace their resemblances and differences, and the classification to which they belong. If a new object is presented to us, Comparison immediately compares it with what we know, in order to find the class to which it belongs. Persons in whom this organ is large will trace resemblances between objects or events, which would entirely elude the notice of others with a smaller endowment. It finds resemblances of things the most opposite in kinds. Homer compares the eloquence of Ulysses to the soft falling of the snow-flakes. We have a light seen afar in a dark night, compared to a good deed shining in a naughty world; or the kingdom of heaven to a grain of mustard seed. It finds analogies between qualities of mind and matter—as a sparkling thought, black despair, beautiful sentiment, light demeanour, brilliant conception, a burning rage, a freezing terror. It is the fountain of similes, proverbs, and metaphors. The universities have been compared to beacons moored in the stream of time, which serve only to mark the rapidity with which the tide of improvement flows past them. "The life of a wicked man flows like a polluted stream." "A beautiful woman, without virtue, is like a painted sepulchre." As poor Richard says, "A fat kitchen makes a lean will."—"the sleepy fox catches no poultry,"—"the early bird finds the first grub,"—"a cat in gloves catches no mice."

The organ was large in Moore; and in his "Life of Sheridan," the Westminster Review remarked that it contained two thousand five hundered similes, besides metaphors and allegorical expressions.

This faculty does not determine the nature of the similes which we employ—that depends upon the other faculties—but it leads us to make comparisons with those things with which we are the most familiar, and which are related to our most active faculties; and from them we chiefly draw our

analogies. Thus, a person with large Tune and Colour will draw similitudes from music and hues of nature. Dr Chalmers drew his illustrations from mechanics and astronomy; and the organs which take cognisance of these are large in his mask. Comparison is generally large in the Hindoo head, and the figurative language of that people is proverbial. The Scriptures are addressed to this faculty in an eminent degree. It is large in all popular speakers—it gives them command of figures, and its manifestations are often mistaken for Ideality. Comparison, however, produces no passion, no enthusiasm: it calmly and coolly, says Mr Combe, plays off its sparkling fireworks; but Ideality infuses passion—prompts the mind to soar after the beautiful and the splendid. Combine Comparison with large Individuality, Eventuality, Causality, Ideality, and Sublimity, and the similes will be ingenious and appropriate; they will now twinkle in delicate loveliness like a star—now blaze in meridian splendour like the sun; while intense feeling and lofty enthusiasm will impart strength and majesty to all the conception.

40. CAUSALITY. (Old No. 35.)

This organ is situated on the upper part of the forehead, on each side of Comparison. It is the faculty which traces out the causes of things, and the connexion which subsists between causes and effects. Individuality makes us acquainted with objects. Eventuality with events and occurrences. Comparison points out their identity, analogy, or difference. Causality gives the idea of connexion, in reference to cause and effect. Everything in existence is more or less intimately related to every other thing; and when the relation of one thing to another is such, that it always must precede it, it is said to be its cause; and that which is thus preceded, is called an effect; this may, in its turn, become a cause, and produce another effect, and so on to infinity, constituting a chain of causes and effects. It is the function of Causality to trace the relation among phenomena which constitute cause and effect. It forces us to think that every event has some cause, and thus, by successive steps, we arrive at the conception of a First Cause of all. It gives facility in divining the motives of men; and is an essential element of a profound and comprehensive intellect, and in such as possess instinctive sagacity,

as Franklin. It is the possession of this faculty which gives man such an immense superiority over the brutes. When it is small, facts are not generally considered as having a necessary dependence and connexion, however obvious such dependence and connexion may be to those in whom this organ is large. Such facts will be considered as curious coincidences by those in whom it is small. We frequently observe persons, with large knowledge organs, and low in Causality, appear to much greater advantage in general society than those with higher order of intellect, conferred by large reflective faculties. A shallow, smart individual would be thought far more highly of by the bulk of mankind than Locke, Newton, Bacon, and Kant. What are termed brilliant men, are seldom very profound; and the fact of a person appearing to very great advantage in a miscellaneous company, as a rule, is an evidence that the reflective faculties are not of a high order. People in general are not highly endowed with the reflective faculties, and cannot, as a matter of course, appreciate profound reasoning. Owing to the perceptive organs being more largely developed than the reflective, subjects addressed to the perceptive organs will be better relished—hence, quick, but shallow men, strike the common mind more forcibly than deep thinkers. Men with great intellects require great circumstances to enable them to appear with full advantage. While a superficial, polite, talkative, plausible person, with a large stock of anecdotes, and a turn for making money, may prove a more successful tradesman than one with a higher order of intellect.

The reflective powers were low in Palmer; and the manifestation of this defect was shewn in his want of practical judgment. In Dove they were extremely small—and he was, in consequence, a partial idiot.

When Causality is large and too active, persons attempt to explain everything without the support of any sound data, or they draw inferences from single facts and have a tendency to metaphysical speculations, and endeavour to penetrate things that must remain unknown to man in this life, such as the origin, nature, and end of things, the nature of God, the state of the soul hereafter. When we wander thus far we must believe, but we cannot know. Man knows the succession of events, and if one be seen uniformly to succeed another, the precedent is considered as the cause and the succedent as the

effect.* Metaphysical philosophy as a great power has been, but it no longer is. It gave impulse to all early speculation; it was the parent of positive science. It nourished the infant mind of humanity, and rescued the nobler part of man from the dominion of brutish ignorance; stirred him with insatiable thirst for knowledge, and led him to undergo amazing toil. But its office has been fulfilled, and is no longer necessary to humanity. Positive science and its philosophy may everywhere be distinguished from the metaphysical by its steady and incontestable progress. Its methods are stamped with certainty, and our knowledge is extending daily; and the experience of years confirms their truth. Metaphysical philosophy only moves in the same endless circle. Its principles are as much matter of dispute as they were two thousand years ago. Precisely the same questions are being agitated in Germany at this time as were discussed in ancient Greece, with no better means of solving them, and with no better hopes of success. The united force of thousands of intellects, some of them the greatest that have made the past illustrious, has been steadily concentrated on problems supposed to be of vital importance, and believed to be perfectly susceptible of solution, without the least result. All this meditation and discussion has not even established a few first principles. The labour of centuries has not produced any perceptible positive progress; whilst positive science and its philosophy, on the other hand, are the history of progress.

It is in vain to argue that because no positive progress has been made in metaphysical philosophy, we are not therefore to conclude none will be made; it is in vain to argue that the difficulty of metaphysical philosophy is much greater than that of any science, and therefore greater time is needed for its perfection. This difficulty is impossibility. No progress is made, because no certainty is possible. To aspire to a knowledge of more than phenomena, their resemblance and succession, is to aspire to transcend the limitations of the human faculties. *To know* more we must *be* more.

* "Biographical History of Philosophy." By G. H. Lewes.

EDUCATION.

THE subject of education is one the more it is thought about, the deeper becomes its importance. In all ages the wise and far-seeing looked to it as the source of true progress and moral elevation. From the days of Plato it has been a favourite subject with master-minds, and never did it excite more attention in this country than within the last few years. The friends of mankind cannot be satisfied with their general condition, either as their physical, moral, or intellectual parts are implicated. Much, however, has been attempted to improve the human race; but it is a lamentable truth that hitherto education has effected far less than is desirable. The cause of this failure may be ascribed to ignorance of human nature. The whole system of education will be changed in proportion as the nature of man becomes known. It will then be perceived that he must be perfected, like every other created being, under the guidance of experience.

The education of man comprehends all that conduces to the cultivation of his nature—that is, the faculties of his body and of his mind, from the moment of conception to that of death, in healthy and diseased state.

The human body and the mind may be viewed as a large assemblage of organs and faculties possessing native energy and extensive spheres of action, each capable of being used or abused, according as it is directed. The extent of the range of these powers is a prime element in the character of man; and it is this which renders education so important.

The designs of education are to strengthen each organ and faculty that is weak, to restrain those which are too vigorous, and to store the intellect with moral, religious, scientific, and general knowledge. Such may have been Plato's view of the subject when he put the question, "Is that not the best education which gives to the mind and to the body all the force, all the beauty, and all the perfection of which they are capable?" Any scheme of education that does not provide for the physical, moral, and mental improvement of those placed under its influence will do little towards human improvement. It is a fact that the intellectual and moral powers can be educated separately, and there is as real a distinction between

moral and intellectual education as there is between physical education and either of them; yet they are all three so intimately connected, that the improvement of any one of them may be made to contribute to the others. Nor can it be otherwise except through mismanagement. Moral action, intellectual action, and physical action have their seats and instruments in different parts of the human system, and those parts are essentially connected by sympathy and other ties more mechanical and obvious. One of them being injured or benefited, the others are affected in a corresponding manner; deriving their being and sustenance from the same source, and serving as elements of the same individual person, each of whose parts is necessary to the integrity and perfection of the whole.

To illustrate my meaning more fully. The morals of every individual depend on the condition of the moral organs of the brain; the intellectual, on the condition of his intellectual organs; and the other, on the condition of the physical powers. The human body is a very complicated apparatus. It consists of many different organs, which are again made up of other organs, each performing its specific functions. But these organs, instead of acting every one for itself alone, act also for each other individually and collectively, and are united in a system by function and sympathy. The condition of one organ, therefore, whether sound or unsound, influences and modifies that of many others. If it be a principal organ, it influences the whole machine. There are three great sets of organs which, while they are intimately and indispensably connected with each other, control all the rest, and assimilate their condition in no small degree with their own. There are the chyle-making or digestive organs; the blood-making and blood-circulating organs, consisting of the lungs and blood vessels and the heart; and the brain, spinal cord, and nerves, which are the instruments of intellect and feeling, and are essential to voluntary motion. These three sets of organs have been said to control all the others; and this they do by mutually controlling themselves—by exercising such a reciprocal influence, as to be all at the same time somewhat assimilated in condition. They are as necessary to each other as they are to the whole. Is one of them deranged in its action? the two others suffer immediately, and all the rest of the system in its turn. Is the one diseased? Its healthy influence,

which is indispensable to the well-being of the two other sets of associated organs, is withheld from them, and they also fail in their action, as well as in their sound and sustaining sympathies. The chyle is deteriorated. This proves a source of further injury to the brain, which, unless it be supplied with well-prepared blood, is neither itself in good condition, nor capable of contributing to the health and efficiency of other parts of the body. It cannot prepare from a scanty and bad material the substance or agent of its own influence, whatever it may be, in sufficient quantity, and sound quality. The general mischief arising from a primary affection of either of the two other sets of controlling organs is equally demonstrable, and depends on similar principles. But it is needless to dwell longer on this subject. To every physiologist it is already familiar. It is known to him, that out of chyle of bad quality, or deficient in quantity, a sufficient amount of good blood cannot be prepared; that, if respiration be defective, the latter fluid cannot be duly vitalised, and that, if the heart be enfeebled, it cannot throw the blood with requisite force into every part of the system. Hence, I repeat, that moral and intellectual education, which consists in amending the condition of the brain, and physical education, which is the improvement of other parts of the body, are indispensable to the perfection of each other, and, of course, of that of the whole system. Physical education is to the other two what the root, trunk, and branches of the tree are to its leaves, blossoms, and fruit. It is the source and *sine quâ non* of their existence. Injure or improve it, and you produce a kindred effect.* Hence, man, to attain the perfection of his nature, as intended by his Creator, must be educated in strict accordance with the physiological laws which govern every department of his constitution, and his whole system must be cultivated in strict harmony with the laws which regulate organic development. One part of his system must not be cultivated at the expense of the other—as we so frequently see in modern education, where every means that can be devised is resorted to, for the purpose of stimulating the early development of the mental faculties of children; while the consequences of premature or immoderate exercise of the organs of the body are fully acknowledged.

The brain has been treated as if it were an exception to the

* Dr Caldwell on Physical Education.

general rule, and the laws which govern animal economy have been violated with regard to this—the most complicated, the most liable to disorder, and by far the most important of all the organs. Every one knows the consequences of overloading the stomach of a child, and the absurdity of demanding from children the muscular efforts of fully-developed manhood; yet many persons see no impropriety of over-working the youthful brain, with the bad effects upon other organs staring them in the face; they persist in tasking the child's brain as they would that of an adult, and demanding from a structure not half matured, the same results as from the same structure at a more perfect growth. The consequences of such treatment are obvious to every one who will take the trouble to investigate them. The functions of that organic apparatus with which the mind works are permanently injured, and the persons either become the victims of disease of its texture, or degenerate into dull common-place, often half-idiotic beings; while, under more judicious management, they might have passed through life in possession of excellent intellect, and free from a thousand harassing nervous symptoms and idle apprehensions, which prove the annoyance of their lives.

To force the brain during childhood and youth to such a high state of action, can only be attended with one result—a temporary blaze of intellect is excited which astonishes and delights the deluded parent; but it is as the blaze whose rapid burst of brilliancy is almost as rapidly extinguished. The bright intellect of children is in most cases the result of disease, or a state of brain closely bordering thereupon; and they usually turn out most ordinary adults. Common observation has pointed out this as a general rule; and yet the same observation which detected so self-evident a fact, has not gone further, nor endeavoured to trace the cause of such a state of things, and in what manner it may be prevented.

The testimony of the most learned and experienced medical men fully bears out these views, as regards the over-cultivation of the brain.

The celebrated Tissot, a learned and practical physician, honoured by sovereigns, and the friend and intimate companion of Zimmerman and Haller, in his work on the "Health of Men of Letters," says, "The effect varies much, according to the age of the student. Long-continued application in infancy destroys life. I have seen young children of

great mental activity, who manifested a passion for learning far above their age; and I have foreseen, with grief, the fate that awaited them. They commenced their career as prodigies, and finished by becoming idiots, or persons of very weak minds.

"*The age of childhood is consecrated by nature to those exercises which fortify and strengthen the body, and not to study, which enfeebles it, and prevents its proper development.*"

"I have elsewhere mentioned the injury that peasants do their children, by requiring of them more bodily labour than they ought to perform. But those injudicious parents who require from their children too much labour of the intellect, inflict upon them far greater injury. No custom is more improper and cruel than that of some parents, who exact of their children much intellectual labour, and great progress in study. *It is the tomb of their talent and of their health.*"

"The employments for which your children are destined in after life should regulate their studies in youth; not requiring, as is the custom with many parents, the most study in early life of those who are to be devoted to literary pursuits, but on the contrary. Of ten infants," says he, "destined for different vocations, I should prefer that the one who is to study through life should be the least learned at the age of twelve."

Upon this subject, perhaps, there can be no better authority than that of the distinguished Hufeland, in his valuable work on the "Art of Prolonging Life," in which he observes, "Intellectual efforts in the first years of life are injurious. All labour of the mind which is required of children before their seventh year is in opposition to the laws of nature, and will prove injurious to the organisation, and prevent its proper development. It is necessary that we should not begin to exercise the faculties of the mind too early; it is a great mistake to suppose that we cannot commence their cultivation too soon; we ought not to think of attempting this while nature is wholly occupied with the development of organs, and has need of all the vigour of the system to effect this object. If children are made to study before this age, the most noble part of the vital force is withdrawn from perfecting the organisation, and consumed by the act of thought, from which it necessarily results that the bodily development is arrested or disturbed, digestion is deranged, the humours de-

teriorated, and scrofula produced. In fine, the nervous system thus acquires a predominance over all others for the remainder of life, producing innumerable nervous complaints, melancholy, hypochondria, &c."

It is true, however, that diversity of organisations requires different methods in this respect. But in all cases the course to be pursued is not the one which is so generally adopted. If a child shews at an early age a great tendency for study, instead of stimulating him to proceed in his course, as most teachers do, it is necessary to moderate his zeal, *for precocity of mind is nearly always disease*, which it is the most prudent to correct. Sinabaldi, in his great work on the science of man, thus speaks of education in early life: "We ought not to fatigue the memory of children by precepts, fables, and histories, of which they are not in a state to comprehend either the signification or morality. To force the memory before *that mysterious organ, the brain*, is developed, is the same thing as to fatigue the muscles while imperfect by long-continued walking, or by hard labour, which will produce a general languor, and arrest for ever the complete development of the organs of the body." M. Ratier, in his celebrated essay on Physical Education of Children, which the Royal Society of Bordeaux crowned, says, "The labour of the mind to which parents subject their children, not only too soon, but in a wrong direction, is the cause of their bad health, and causes nearly all those who are distinguished by precocity of the intellectual faculties to perish prematurely, so that we seldom see a perfect man, that is, *one who exhibits an equilibrium of the physical, mental, and moral faculties.*"

It may, however, be a source of consolation to those parents who are apt to lament any apparent loss of time in the early periods of life, to learn that early acquirements are not to be gained without the loss of health, and that the future progress of the individual will depend upon the foundation which is laid in infancy by judiciously adapting the studies of the child to its age and constitution. If we wish to fully develop all the powers of the mind, we must take care not to over-exercise any part of the brain, nor allow it too little action, because, in the first instance we exhaust the organic instrument before it is matured, and in the latter we induce inactivity and torpor.

For many years I have devoted much time and attention

to the study of human physiology, and its practical application to physical, mental, and moral education. I therefore speak from practical experience of what I know, and not from theory, as is too often the case with persons when speaking and writing on the subject of education. I could recount numerous cases that have come under my own observation of the sacrifice of the health and lives of children to the vanity and ignorance of parents and teachers.

Those into whose care children are intrusted to be educated ought to be well acquainted with human anatomy and physiology. The neglect of these sciences is a most lamentable evil, and, if their importance were more generally understood in the training of children, there are few parents who would think of placing their children under the care of persons unacquainted with their practical application to health and education. If they had been understood, I am confident that great numbers of books for children which have been highly recommended would never have been written. Books, instead of being a blessing to society, have done much injury.

Few things will be more surprising to future generations than the fact that those whose business it is in this enlightened age to cultivate the human mind were ignorant of the organ by which the mind is manifested, and, of course, inattentive to the conditions of that organ. It will appear strange hereafter that many, through the medium of books, ventured to dictate the manner in which the mind should be disciplined and tasked, without any regard to the laws of physiology; and yet, when the manifestations of the mind were deranged, acknowledged its dependence on an organisation of which they were ignorant, and expect to have the balance restored by medical men, who, in all their attempts to remedy the evil, act upon the bodily organs. Thus individuals like Phaëton attempt to guide the chariot of the sun while ignorant of the power they endeavour to superintend, and of the means of directing its irregular action.

JUVENILE CRIMINALS.

The reformation of a most unfortunate class of children is at this time engaging the attention of many good and earnest minds. But I have little hope of much lasting practical benefit to many of this most pitiable class of criminals from the

various methods proposed for their moral elevation. The physical man is too much overlooked, and we may exclaim with Dupaty on his seeing the magnificent anatomical museum at Florence—"Philosophy has been in the wrong not to descend more deeply into physical man; there it is the moral man lies concealed."

I have before stated that the brain is subject to the same conditions as the external senses and the muscular system. Bind up the muscles of the arm from infancy, and there would be neither strength nor motion in it. Bandage up the eyes of a child for many years, and it would be blind. So it is with the mind: suffer a child to run about the streets, and be a daily witness of crime; neglect the proper stimuli to the moral and religious sentiments; abandon his perceptive faculties to the noxious influence of the dram-shop, the prison, or the abodes of craft and cunning, where, instead of being nourished with useful knowledge, he can only become acquainted with trickery; and lastly, let the reflective faculties be left to exercise themselves in mere schemes of dishonesty,—I then ask whether, after being thus schooled in vice, the poor sinning creature in whom all the laws of his nature have been violated, does not demand our deepest sympathy?

Let me then impress upon the minds of all the true friends of this most pitiable class of children, the important fact, that their moral improvement can only advance in the degree that they are educated and trained in conformity with the laws of physiology that regulate and govern organic growth.

Moral elevation cannot take place in any human being until he is trained to habits of moral self-government, and the non-recognition of this fundamental principle of human nature is the reason that all attempts in this country in criminal reformation have more or less failed. It is a fundamental law of our nature, that moral actions cannot be manufactured by the lash, the treadmill, the dungeon, the silent system, the solitary system, or starvation. There is no earthly means of forcing the criminal to be moral. He must be trained to it. The boy learns to make shoes by making shoes. The little criminal can only be trained to act morally under his own moral self-government, and that he can only acquire by being treated as a human being, and all his affections and sympathies, both moral and social, cultivated in the most kind and gentle manner. By this means he may be raised in his own estima-

tion ; and if this be denied him, after society from its neglect has made him a criminal, all attempts at his reformation will prove abortive.

The enemies of education say that crime increases in proportion as education is promoted, and certainly appearances seem to favour their assertion. But they should not forget that what is called education is merely instruction in words and signs. The instruments of education have been put into men's hands, but they have not been educated in the proper sense of the term. They have not been trained to the practice of virtue. Let it be shewn that crime has been increased by training the intellect and moral sentiments of individuals to proper activity and strength, and to habits of moral self-government, and then I will give the matter up.

THE END.

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